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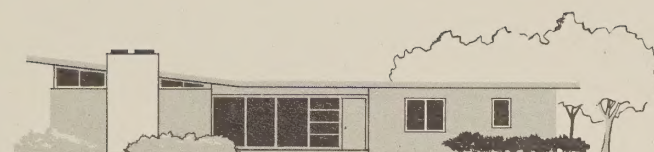


CONTEMPORARY FARMHOUSES

FLEXIPLAN 7 204

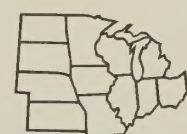


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CONTEMPORARY FARMHOUSES

FLEXIPLAN 71204



Prepared by M. R. Hodgell, Under the Direction of the Farmhouse Technical Committee (NC-9) of the North Central Region

North Central Regional Publication 58, Illinois Agricultural Experiment Station Bulletin 600.

Agricultural Experiment Stations of Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin, and the U. S. Department of Agriculture Cooperating.

Flexiplan 71204 is a contribution from the Illinois Agricultural Experiment Station to cooperative regional research under project NC-9 of the North Central Region. Funds were provided in part from 9b3 funds for regional work.

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Cover photo from U. S. Soil Conservation Service.

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PLANNING YOUR HOME

A new home may be the biggest investment you ever make, with the exception of your farm, business, or retirement security. Accordingly you want to be sure the investment is sound — not only in a financial way, but in terms of a good structure and a satisfying home.

You can do a great deal of the planning just by choosing among arrangements of floor space, methods of construction, and available materials, equipment, and finishes. The more thoughtful attention you give to planning before you start to build, the better your chances for achieving a completely satisfactory home. But it is also easy to make costly mistakes or to overlook an important point so as to reach a wrong conclusion.

The best way to start is to find out the wants and needs of your family. Then examine and compare house plans such as the ones in this book. Note how various construction methods can be used and the range of choice you have in materials and equipment.

Your planning should also take account of how to obtain an effective setting, a workable plan, permanence in construction, beauty, and economy.

ORGANIZATION OF SPACE. Every family home should have three zones to serve three distinct functions: (1) to accommodate housework, mainly in kitchen and workrooms; (2) for recreation and group activities, centered in the living rooms; and (3) for privacy in bedrooms and related areas for sleep and rest. Value each plan you study by how well it conforms to these zone requirements.

CONTROL OF TRAFFIC. Trafficways that connect one part of the house with another are sometimes confined in halls or on stairs, but they may have to go

through rooms. Then traffic lines should be controlled so that the normal activities in any room are not disturbed by people passing through. Try to plan so the most direct route or passageway is along one edge or across a corner of a room.

DECIDING ON EQUIPMENT. Today's home ought to be completely up to date in its equipment, appliances, and utilities. The values of health, comfort, and convenience that you enjoy in the home are due to the continuing improvements that are being made. For this reason, planning should be carried through to your final choice of heating system, plumbing fixtures, water supply, waste disposal, and wiring plans.

PERMANENCE THROUGH FLEXIBILITY. A reasonably economical but well-built house should last for 50 or 60 years or more. To last this long it should be built so that it is protected against decay, insects, wind, and water; and it should be as firesafe as good structure, adequate wiring, safe chimney, and inspected heating system can make it.

But the only real guarantee of permanence in your home is its capacity for change. The house will last far longer than any one family or succession of families would want to live in it without changing it. You will want a house that is flexible enough to lend itself to changes in the way rooms are furnished, finished, equipped, and used. Families come and go, people's wants differ, and new and better products appear from time to time.

BEAUTY. Yours is the only taste to be satisfied in the appearance features of your home. No matter what you may be told of style, or fashion, or beauty, your house should be acceptable to you and to your family. If you concentrate

on getting the most comfort, convenience, and usefulness that you can, the house will also be beautiful because it satisfies.

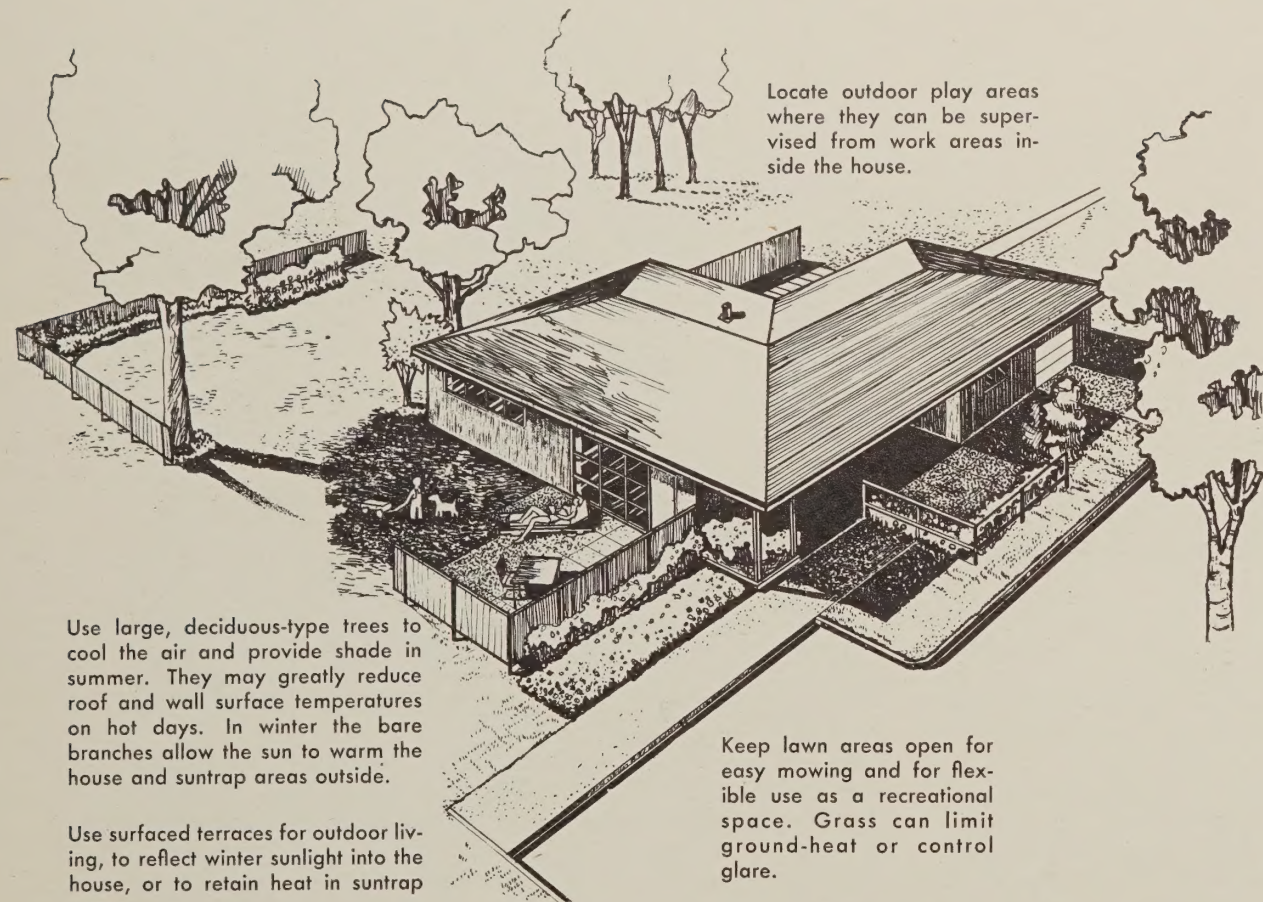
ECONOMY. Even with limited finances, the problem is not to build the cheapest house possible. Instead you want the best you can get for the amount you invest. If the investment has to be limited to begin with, it might be best to start with a minimum house, and add a room, wing, or extension later; or to leave out something now that can be added in the future. Sometimes, however, so little is saved by leaving out needed space or a facility that the sacrifice should not be made.

Even though basement space or attic space is relatively low cost, its usefulness for you may also be low and the expenditure not justified. On the other hand, an attached garage or carport increases the total cost but the extra spending may be wise if you want more storage and a place for the car anyway.

Careful planning and budgeting for better-quality materials in the beginning may mean real savings later in the cost of repairs, maintenance, and fuel.

SELF HELP. You may be able to trim the cost by doing some of the work yourself. Farm families in particular are in a good position to save money by using farming equipment for hauling, excavating, and grading. You can save cash expense by contributing your own and family labor to help with concreting, framing, roofing, painting, etc. Although suggestions given here may help make good use of home labor, this book is not intended as a do-it-yourself guide.

THE HOUSE AND ITS SURROUNDINGS



SITE PLANNING. Your outdoor planning should be done to obtain the most good from the surroundings in the way of usefulness, convenience, privacy, protection, and beauty. The suggestions given here include some of the ordinary rules for step-by-step planning, but these can often be broken if need be to take advantage of a particular value such as slope, woodland, or an attractive view.

In deciding on a house plan, you need to start with the location. A good deal of site planning ought to be done before the arrangement of the house itself is settled.

Most recommendations for locating the home and planning the surroundings apply equally well to farmhouses and to other houses in any one of several settings in uncrowded areas. Such features as side access from driveway; orientation to sun, wind, land slope, and views; and a high degree of flexibility are always desirable.

THE SETTING. Whether your house is to be among others in a city, town, or suburb, by itself in the open country, or on a farm near barns, sheds, and feed-lots, you can do much to improve the setting by planning both to emphasize attractive features and to protect yourself against undesirable ones.

Outdoor planning should be done to get drainage away from the house, make the best use of sunshine in daytime living rooms in winter, and give protection against cold winds and snow in winter. Use both plantings and construction in developing the site plan.

The suggestions that follow apply wherever the site is not closely restricted by streets, lot lines, and building codes; they will be particularly suitable for fitting the house into a farmstead or open-country location.

Place the house in the most attractive setting possible. It should be the nearest building to the public road, but set it back 100 feet or more from the road.

Set house on relatively high ground or raise the grade to obtain surface drainage away from the house.

Locate it so that disagreeable odors, dirt, and flies will not be carried toward the house by southwest winds in summer.

Plan ahead for water lines, storm drain, sewer or septic tank, storage tanks, telephone lines, and electric service so that these facilities can be provided without detriment to lawns, trees, walks, or driveway.

Modify the plan if you can so that bedrooms will be exposed to summer wind from south or southwest, and also provide a south exposure for the living room.

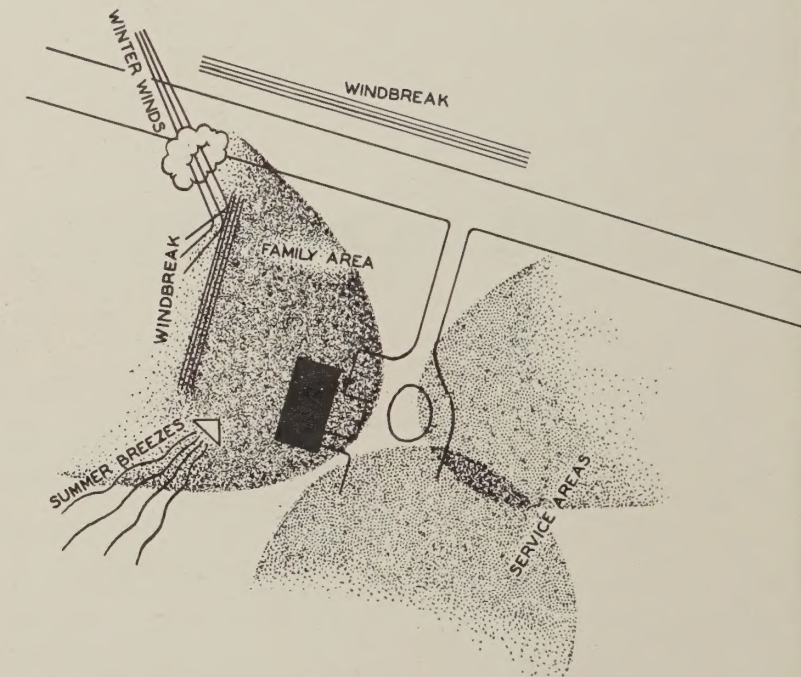
Bring the drive close to the main doorway. Provide direct access to the house from driveway and parking space.

Plan driveway, garage or carport, and porch or breezeway so that the car can be brought close to the service entrance and kept near the house.

Locate service entrance so that you can go readily to and from outdoor work, play, and garden areas.

Consider your outdoor living needs for such features as garden spot, lawn, play space for children, clothes drying yard, and recreation area.

Protect from winter winds and snow by windbreak or other barriers to the north and west, but avoid having heavy plantings or structures southwest of the dwelling where they would obstruct cooling winds in summer.



TYPICAL NORTH-FACING FARMSTEAD

THE HOUSE ON THE FARM

This book was prepared by people in the agricultural experiment stations of the North Central states for the use of farm families in that region. But houses are alike in so many ways that any prospective owner can find suggestions here that are fully as suitable for nonfarm homes as for farm homes.

Of course there are differences between farmhouses and nonfarm houses in the ways they are arranged, located, used, and paid for. The farmhouse poses problems of proximity to farm buildings and barnyards, adaptation to habits and customs of farm life, and flexibility to meet the needs of a probable succession of farm operators.

The farmstead may have been established a long time ago because of a particular feature of water supply, topography, or nearness to school, church, store, or neighbors. Existing trees, roads, or usable buildings may influence you to leave the farmstead where it is.

Nevertheless, the time to think through the farmstead plan is before you start a new house. Possibly the best solution would be to make the house the first unit of a new farmstead. But if you stay in the same place, you can develop a long-range program for gradually replacing and relocating farm buildings.

Plan your house as a part of the family living area in the farmstead, along with garage, walks, drive, parking place, lawn, and recreation areas. The parts of the farmstead for equipment storage and production can be arranged in relation to each other and to the home area, depending on the way the farmstead faces to the public road.

The farmhouse setting offers a great deal of freedom in planning. Ample space is usually available for lawns and yards. Since you are not restricted by lot lines or rigid rules of location, you can place the house for the best view, land slope, and access. It may be set at an angle if desired. Driveways, walks, borders, and open areas can be worked out about as you want them.

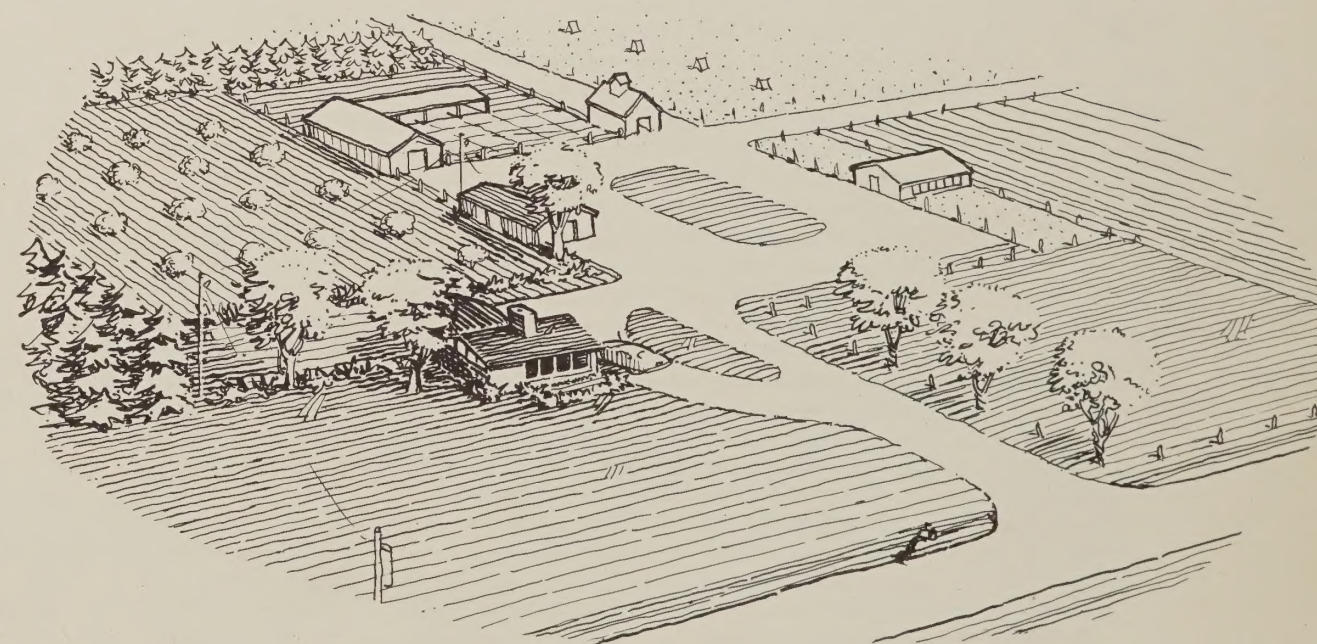
THE HOUSE MUST BE ADAPTED TO THE WAYS OF FARM LIFE. The house plan ought to be particularly flexible, or adaptable, for over the years it must serve different families or one family through successive changes. At least three bedrooms are needed. Farm families usually want a place to eat in the kitchen or close by as well as a more formal dining space.

Besides one or more bathrooms near the bedrooms, the farmhouse needs a wash-up space, toilet, and shower located where it is convenient to use for cleaning up after outdoor work and a place for storing work clothes. The farmhouse must often provide ample workspace and storage and a place to take care of business records and reports.

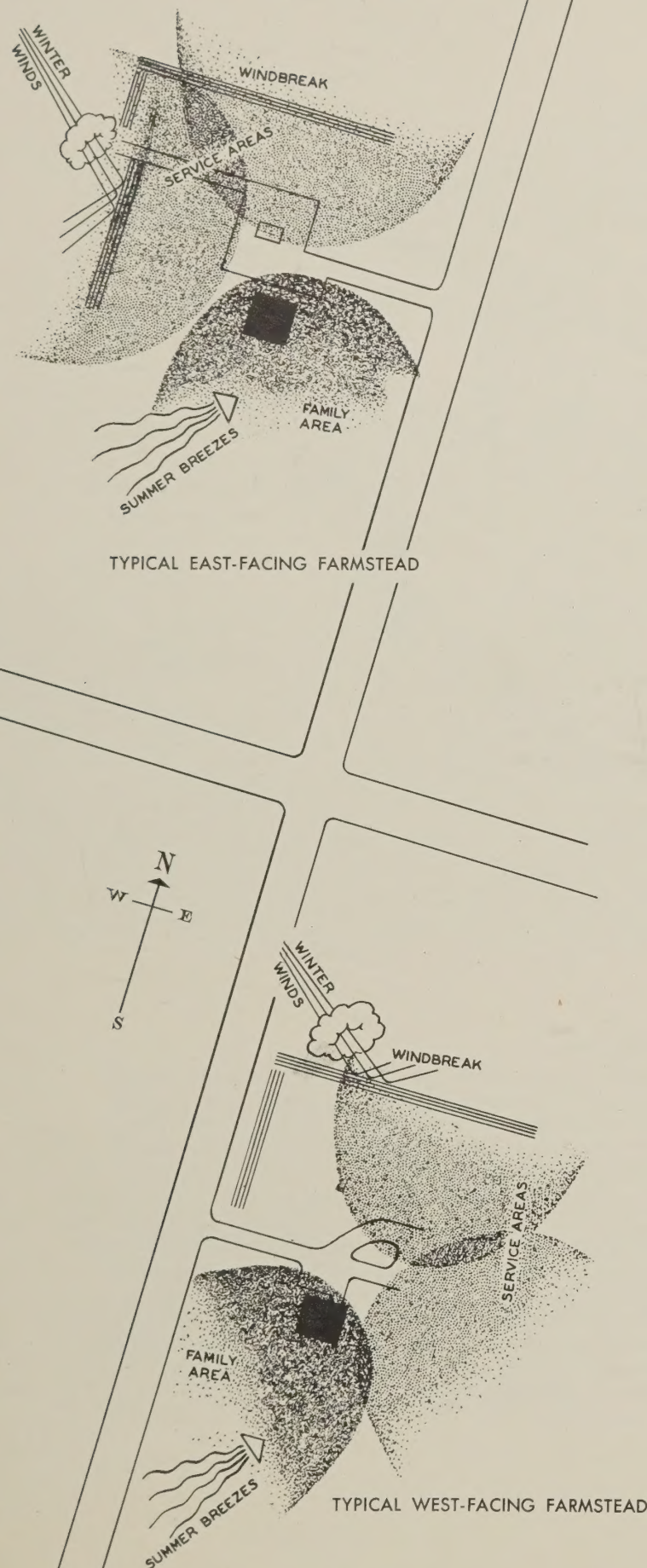
In farmhouse planning, take particular account of such things as outdoor planning that makes it most convenient for visitors to come to the main entrance; a service entry, wash-up place, and work-clothes closets convenient for the many outdoor-indoor trips each day; a driveway and garage next to the house to keep the car close by; and the adaptations you want for accommodating guests, group meetings, childrens' play, or pursuit of hobbies.

EXTRA RESPONSIBILITIES ARE IMPOSED. If you build on the farm, you must provide your own water supply and disposal systems. You can build without conforming to urban codes that contain restrictions which may not be necessary in rural areas; but in the absence of codes or inspection, you have a responsibility for choosing plans, construction methods, and materials that assure a safe, substantial home. More effort is required on your part to select and adapt plans, arrange for workmen, and see to the many details of building than would be necessary to contract for construction in a community of homes. On the financial side, you will generally have to mortgage the farm as security if a substantial loan is needed for building.

An important part of your planning is to decide on the structure of the house and the materials to use. As you study the following pages and make your choice of foundation, wall, roof covering, and other details, you obtain a complete basic plan for your house except for modifications that need to be made to conform to personal choice, cost limits, climate, and setting.



TYPICAL SOUTH-FACING FARMSTEAD



CONSTRUCTION

CONSTRUCTION PRACTICES vary from place to place and among builders, but the wood-frame structure is by far the most widely used. It has a wood sill anchored to a masonry slab or foundation; either a trussed roof or a roof frame consisting of ceiling joists, rafters, and ties; floor and wall framing members spaced 16 or 24 inches from center to center of pieces; and framing doubled at openings and tripled at corners.

Masonry exteriors usually are stone or brick veneer on a wood frame. Sometimes full-thickness brick or block walls are used with furring strips to separate the interior surface from the structural walls.

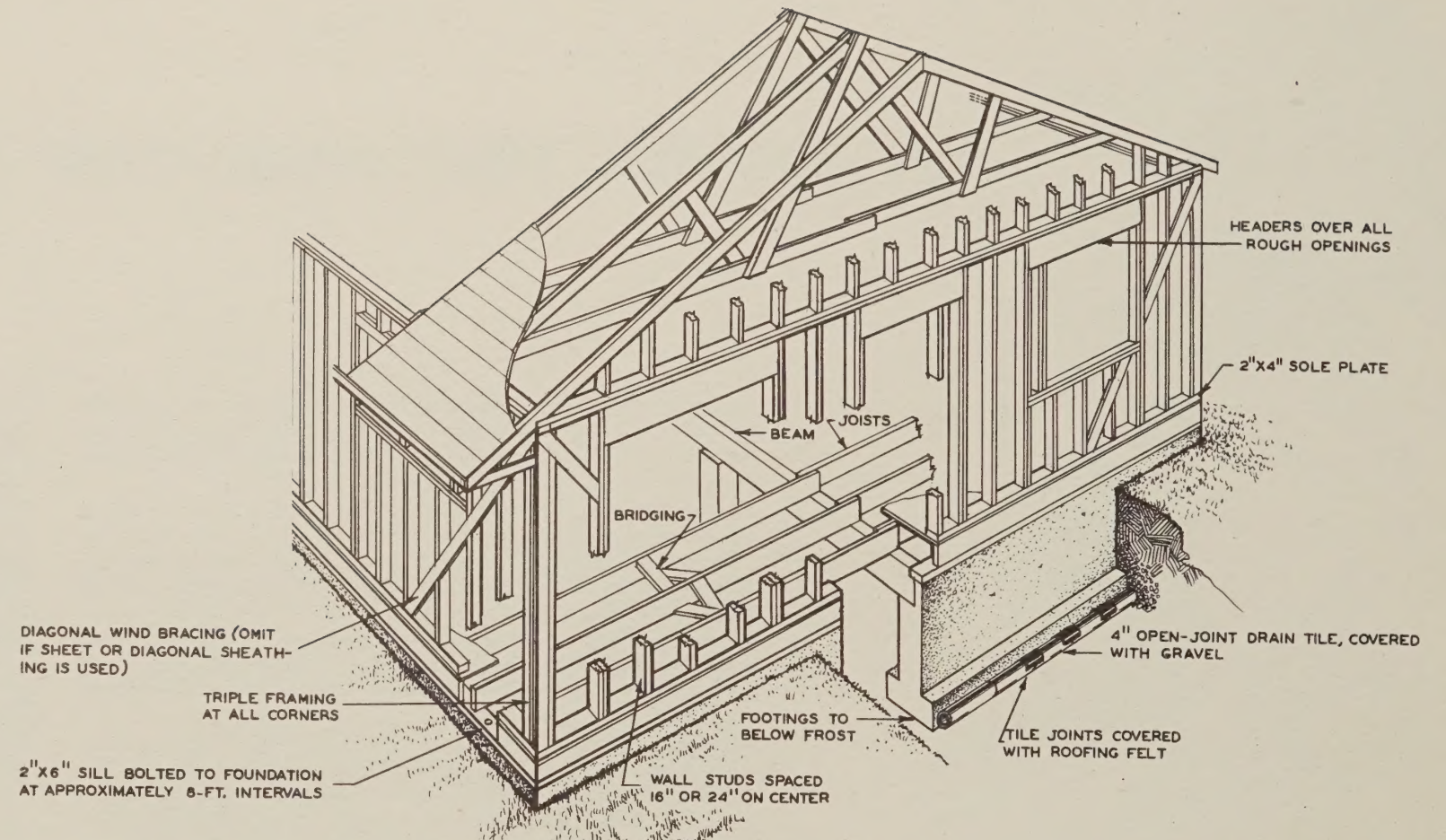
Recommended construction practices are shown on the following pages. A builder who is competent to construct houses of the character of those shown here is capable of providing good workmanship and supervision. So the most emphasis is given here to needs that might be overlooked — such as insulated floor slabs, foundation drains, waterproofed basement walls, trussed roof frames, vapor barriers, termite shields, and other features that help to make a durable and satisfactory structure.

SPECIFICATIONS FOR MATERIALS, TEXTURES, AND FINISHES require thoughtful planning. It is not necessary that you write a precise, detailed, technical specification for each item; an architect, consultant, dealer, or builder can do that for you. Your problem is to find out about the different materials, compare them, decide what you want or can afford, and explain your choice clearly enough that it can be specified.

CONTRACT PAPERS are required where the work is to be let to a contractor. Plans and specifications are necessary, a contract agreement should be signed, and a standard form "General Conditions of the Contract" is usually included to cover subcontracts, extras, insurance, liability, and many other points that might be involved.

YOU WILL PROBABLY WANT SOME HELP on the many responsibilities connected with planning, choosing materials, and getting the house built. You may prefer to employ an architect, designer, or consultant who will take over all or part of the responsibility. Talk with dealers and builders in the community. If you are interested in a rural home, see the county extension agent, or write to the college of agriculture in your state.

A PREFABRICATED HOUSE, of course, may be the answer for some people. But even with a prefabricated house, you have to follow most of the steps in planning and make choices to meet your needs, so that this book can still serve as a planning guide. Many of the structural features presented here are also used in prefabrication.



This drawing will help you to identify the parts of the structure and to locate the items detailed on the pages that follow. Before you study the pages in detail, however, you may want to turn to the back part of the book, and examine the plan arrangements to see what sort of house you want.

COUNTING THE COST

Make sure before you start that you can obtain the house you want for the money you can invest. It is better to have a close calculation or even an exact bid before you start building than to find out later that the cost is more than you expected. A bid from an established contractor is the only sure way to know in advance just what the cost will be.

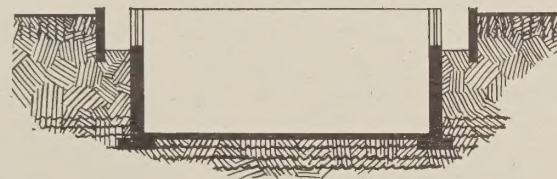
You can get a general guide to cost based on the area counted as the square feet of floor space within the house plus half that of attached areas such as porch, breezeway, and garage. Ask a builder or materials dealer to estimate the average square-foot cost for similar buildings in your community, then multiply the area by the unit-cost estimate. This will give an idea of the cost range, but don't rely too heavily on it. You can run the costs higher than the estimate with elaborate equipment, expensive materials, or inefficient workmanship. You can cut cost below the average by using family labor, local materials, and less than top-quality items.

DECIDING ON A BASEMENT

SHOULD THE HOUSE HAVE A BASEMENT?

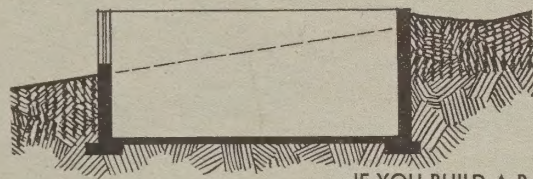
YOU MAY WISH TO OMIT THE BASEMENT IF:

Surface drainage is poor
The ground-water level is often high
Blasting would be required to excavate
You want to do away with stair climbing
You decide on a ground-level plan and select equipment so that a basement is not needed



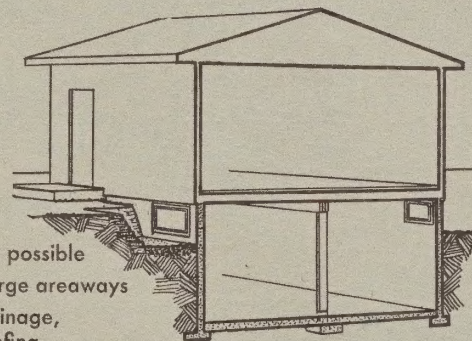
BUT YOU MAY DECIDE ON A BASEMENT IF:

The site has considerable slope
You have to go to a deep frost line for footings anyway
You want it for the space and convenience it offers

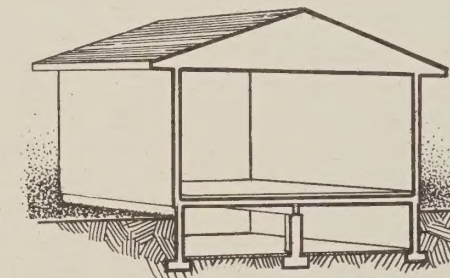


IF YOU BUILD A BASEMENT:

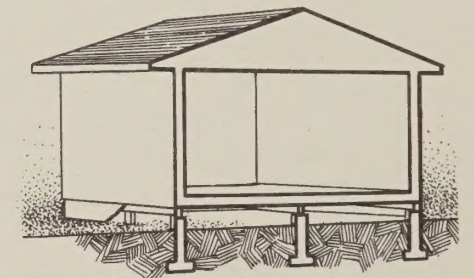
Avoid outside steps wherever possible
Obtain maximum light with large areaways
Pay particular attention to drainage, surface slopes, and waterproofing



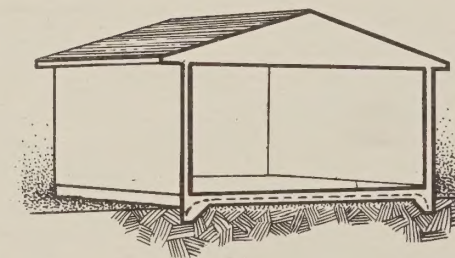
IF YOU BUILD A BASEMENTLESS HOUSE, YOU MAY FOLLOW ANY ONE OF THE METHODS SHOWN HERE:



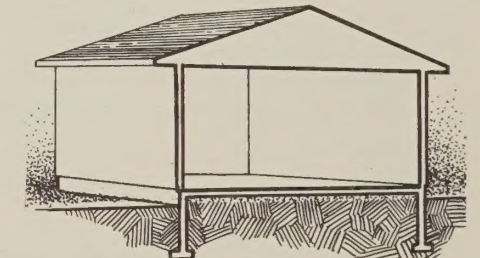
Wood floors over a crawl space



Wood floor with piers to support built-up sills and beams and having curtain walls



Floating slab of reinforced concrete on fill, with edges thickened



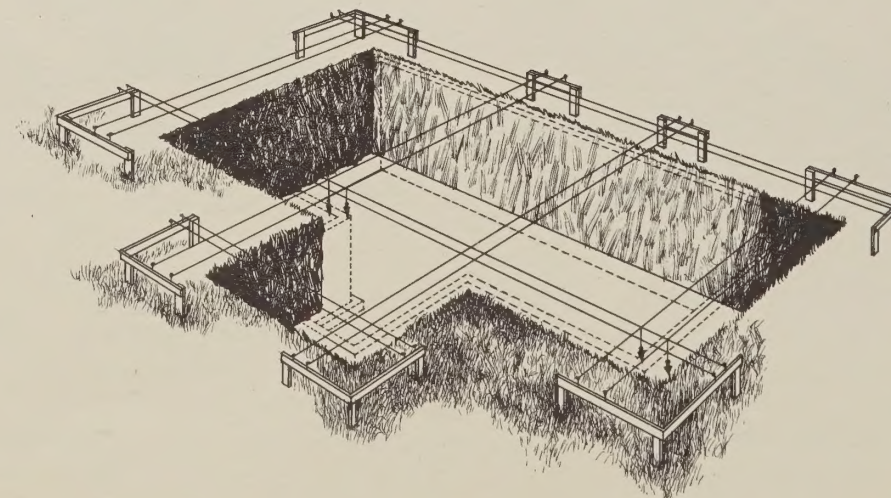
Concrete slab on fill inside masonry foundation

The new house usually should be squared up with nearby buildings, fences, roadways, walks, or lot lines. In farm and rural settings, however, there is often enough room and freedom of choice so that the house might be set at an angle if that is the preference.

The house should be on elevated ground and the foundation itself built high enough so that the surface can eventually be graded to carry rainwater away from the building. On sloping ground, it may be necessary to vary the grade line from one part of the house to another. Sometimes the building site may have

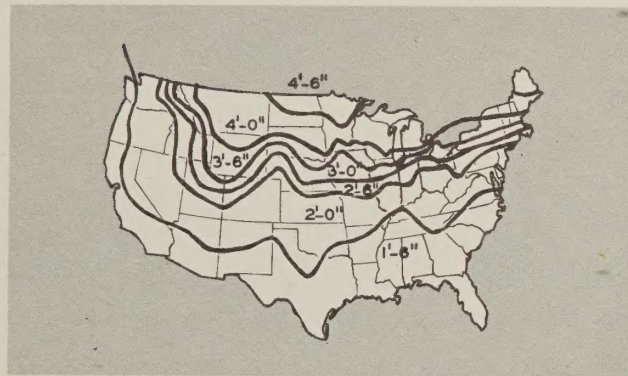
to be graded to desired shape before the foundation is laid out.

Plan for necessary utilities, services, and points of access before you start to build or to arrange the landscaping features. Among the most important points are (1) locating the driveway for convenient access to garage, main entrance, and kitchen entrance, (2) bringing in electric service so that poles and wires will not be unsightly nor require that trees be damaged, (3) providing an open area for septic tank and disposal tiles, and (4) taking account of water lines, foundation drains, and gas lines or fuel-storage tanks.



Staking out the foundation for a house is usually a job for the building contractor. If you do it yourself, it is particularly important to establish a suitable grade line, square the corners, and set batter boards back so they will not be disturbed by excavation. Verify squared corners by measuring diagonals, which should be equal in length.

FOOTINGS AND FOUNDATIONS



DEPTH FOR FOUNDATION FOOTINGS. Depths indicated for each area are recommended to place footings below frost penetration in winter. Note that even in localities where freezing is not a major problem, footings should be not less than 1 1/2 feet deep.

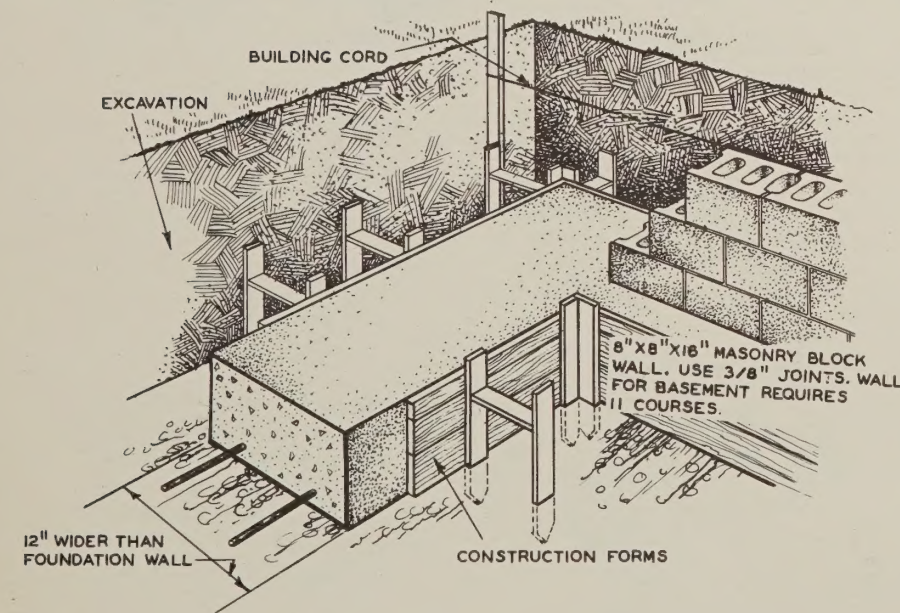
Excavations should be wide enough to permit workmen to set forms for poured concrete, allow for placement of tile drains, and give access for waterproofing exterior walls. Waterproof with coating of portland cement plaster and two coats of asphaltic material mopped on.

Concrete for footings should be reinforced with two half-inch steel rods. Monolithic or cast-in-place concrete foundations and basement walls are recommended in areas that have a high ground-water level or where prolonged dry-weather cycles occur, and can be used in all regions where builders or owners prefer.

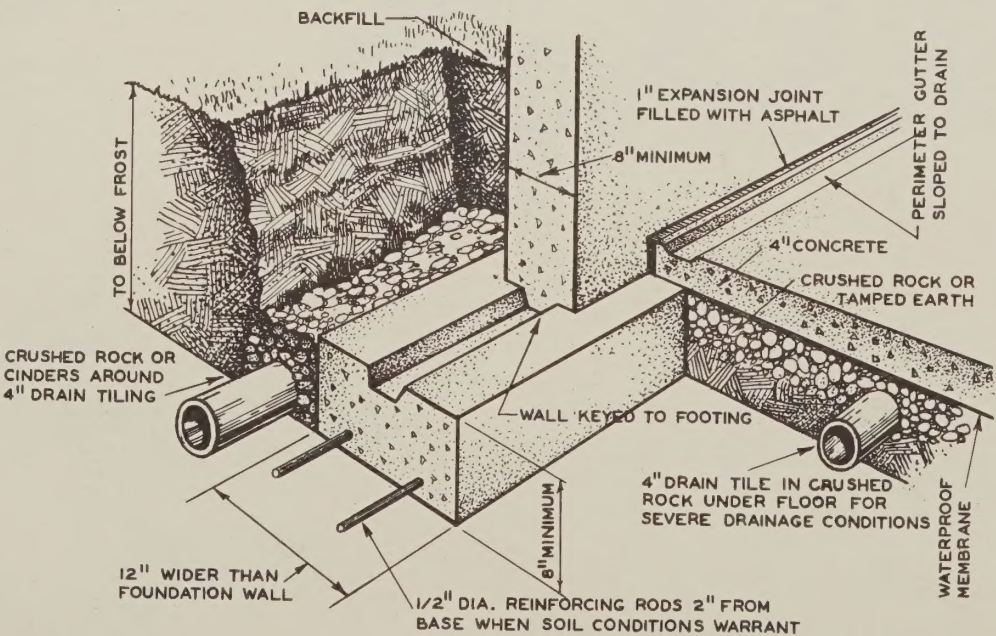
Concrete should be mixed with a water-cement ratio of not more than 6 gallons of water per sack of cement. If ready-mix con-

crete is used, specify not less than 6 sacks of cement to each cubic yard and a design to give 3,500 pounds per square inch compressive strength after 28 days. Concrete mixed on the job should have proportions of 1 part cement to 2 1/4 parts sand and 3 parts coarse aggregate. If bank-run or pit gravel is used, make sure that it is suitably graded and clean enough to use, and is mixed with 6 sacks of cement in each cubic yard.

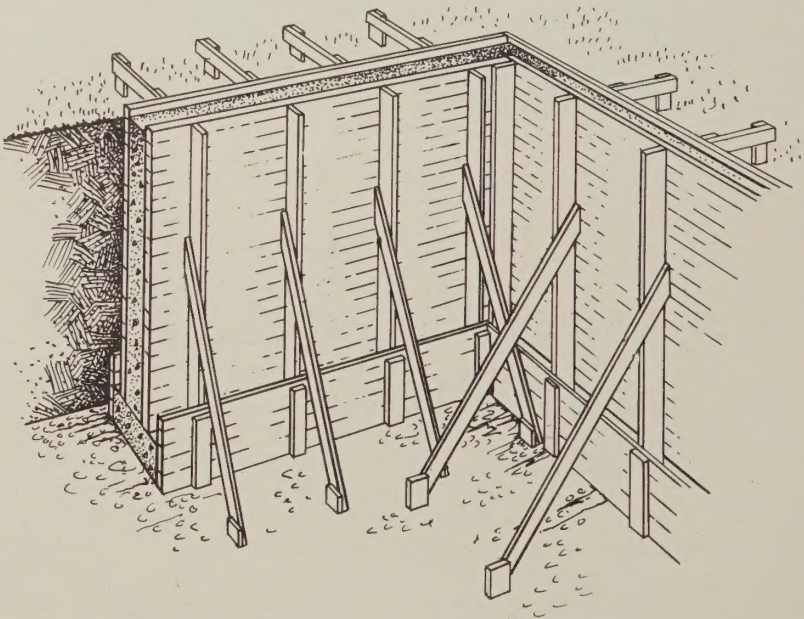
Masonry units are quite commonly used for foundation and basement walls. Pilasters are needed to give strength to resist earth pressures against basement walls. Mortar is made with a commercial mortar mix combined with masons' sand; or combine 1 part cement, 1 part hydrated lime, and 6 parts sand, by volume.



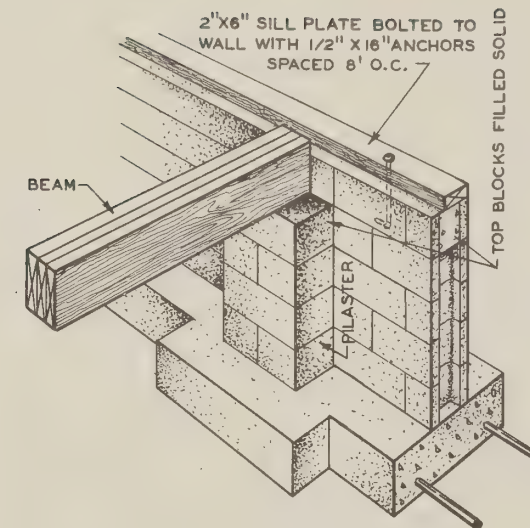
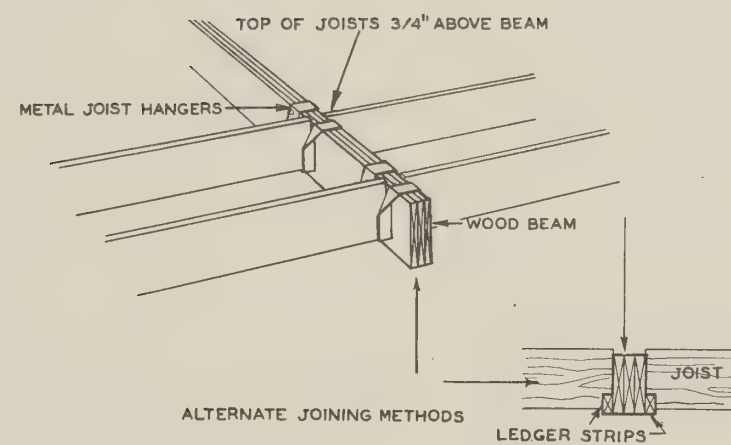
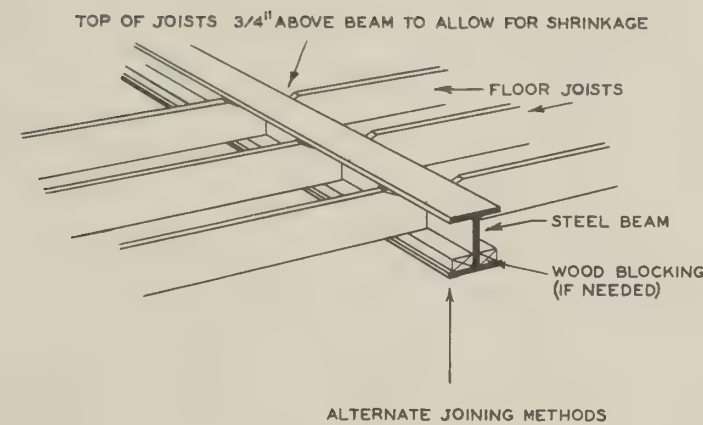
Footings are usually 16 to 20 inches wide. Walls are centered on the footing.



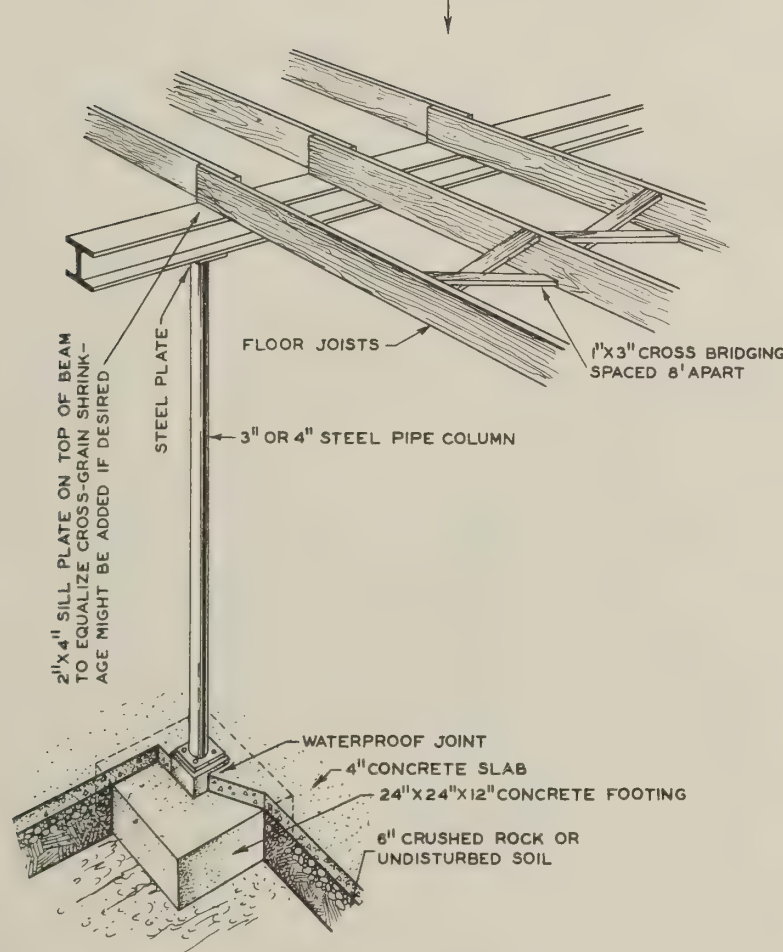
Recommended construction detail for basement wall of cast-in-place concrete.



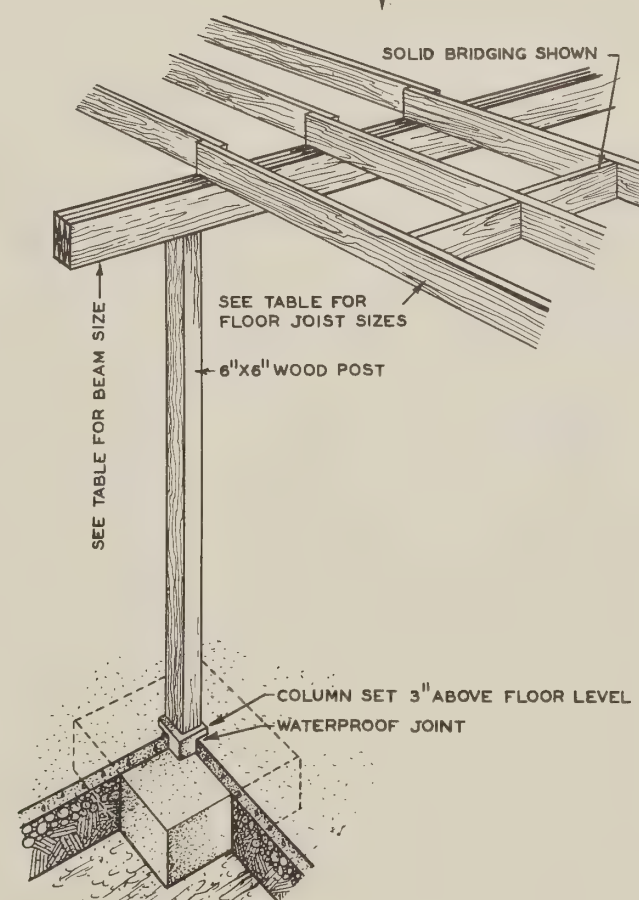
Cast-in-place concrete basement walls require strong, heavily braced forms. Skilled workmen should be employed.



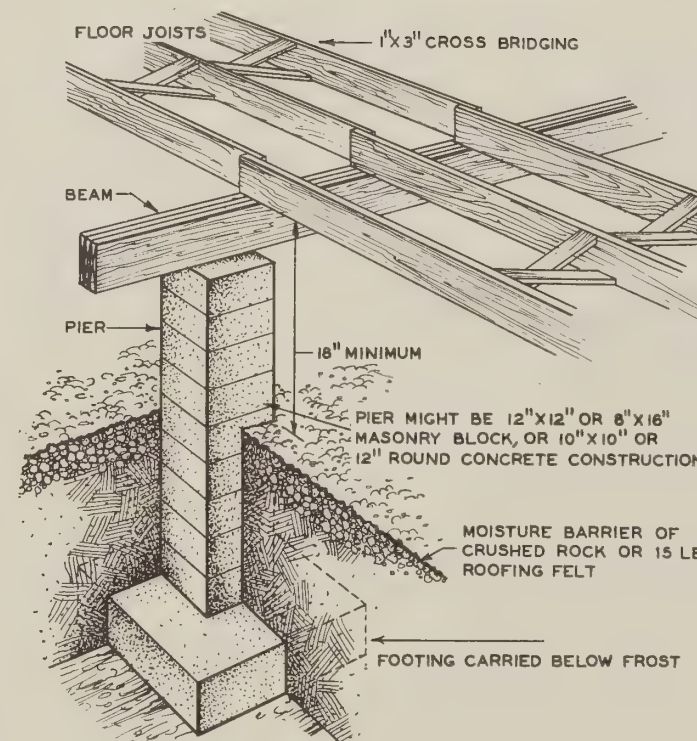
THE PILASTER shown here serves as a support for the beam in crawl-space house. Basement or foundation walls of block construction should be stiffened with pilasters at intervals of 10 to 16 feet along the wall.



STEEL BEAM AND COLUMN for the support of floor joists in houses with a basement. Alternate joining method gives greater basement headroom.



WOOD BEAM AND COLUMN. Steel columns may be used also with wood beams. Usually lap the joists on top of beam, but if basement headroom is limited use alternate method with ledger strips or metal hangers.



PIERS are commonly used to support beams in houses without a basement. In mild-weather areas houses are frequently built with piers to support exterior walls. Sills carry the load between piers and a curtain wall is built to enclose crawl space.

Sizes of steel beam for best economy or minimum practical depth

SPAN feet	FOR ECONOMY			FOR MINIMUM DEPTH		
	Depth inches	Type symbol	Weight pounds	Depth inches	Type symbol	Weight pounds
10	10	Jr.	9.0	6	B	12.0
11	10	Jr.	9.0	6	I	12.5
12	10	Jr.	9.0	7	I	15.3
13	10	B	11.5	7	I	15.3
14	10	B	11.5	8	B	15.0
15	12	Jr.	11.8	8	M	17.0
16	12	Jr.	11.8	8	M	17.0

Sizes of wood beam or girder for given spans, when built up from common dimension lumber

SPAN feet	PIECES number	WIDTH AND DEPTH inches
10	3	2 x 10
11-13	3	2 x 12
14-16	4	2 x 12

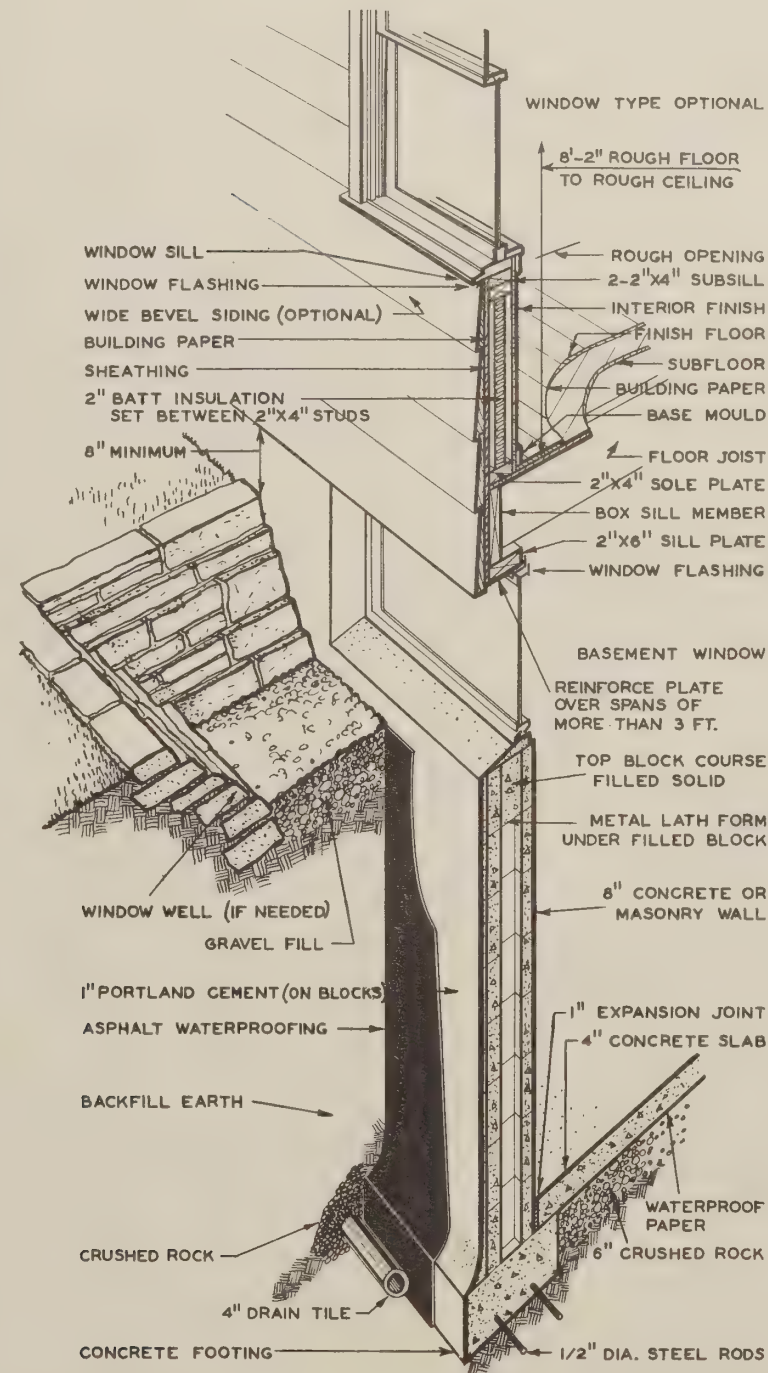
Sizes of floor joists for given spans and spacings

SPAN feet	FOR 16\"/>
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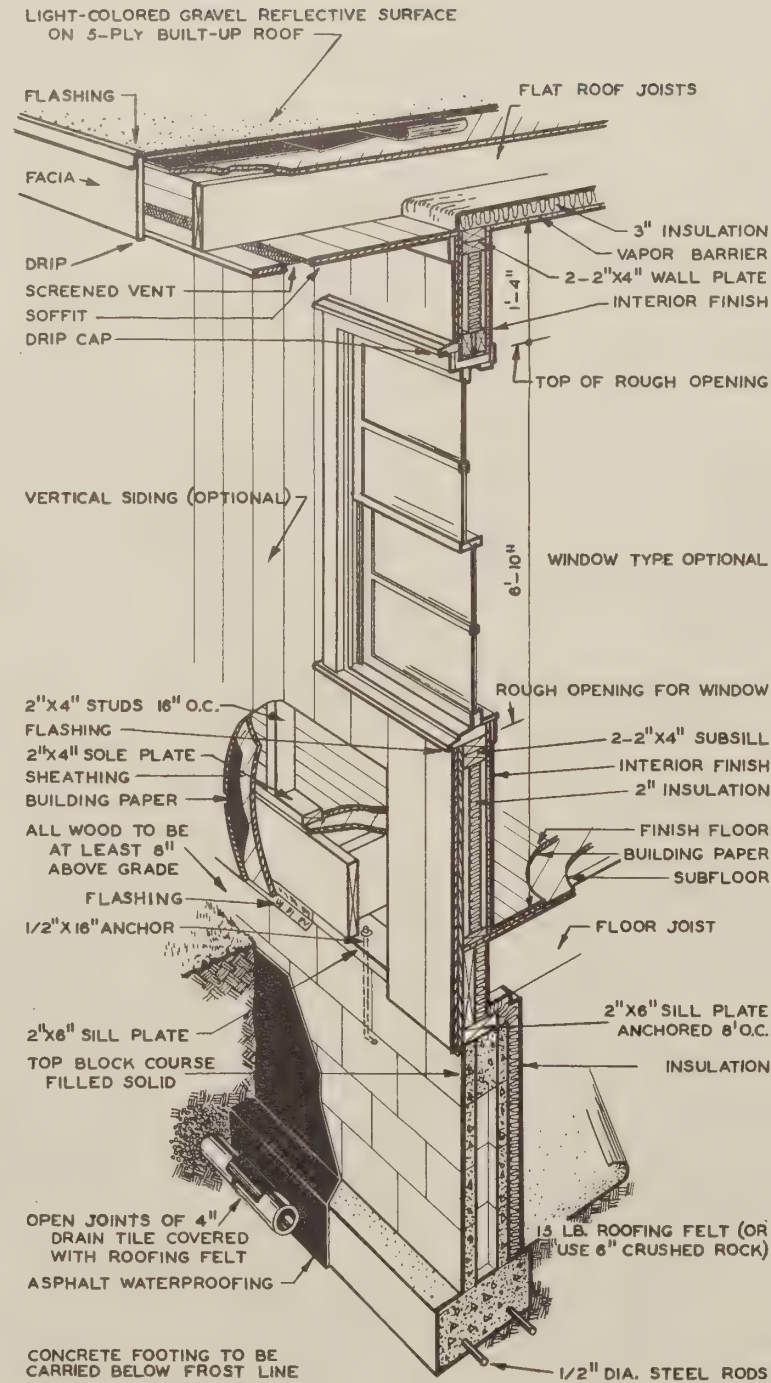
WALL CONSTRUCTION

The six types of house-wall construction shown on these two pages give you a choice among those commonly used for masonry, veneer, and wood frames. The drawings are complete enough to be used as part of the house plan. Fill in the joist and beam sizes from the preceding page and choose the roof structure from pages 12 and 13.

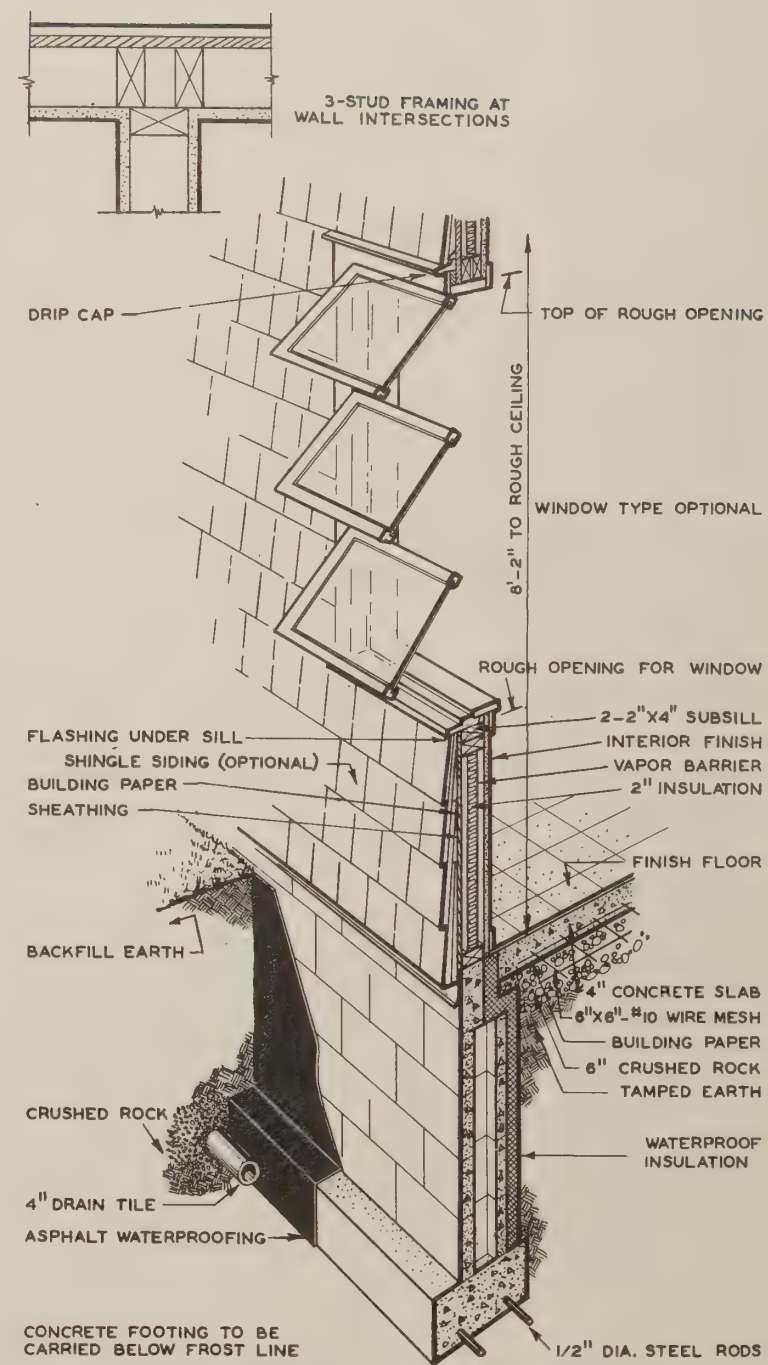
Each illustration embodies the best recommended construction for the particular type of wall, foundation, and floor. You can make up different combinations for a choice of poured concrete or block foundations; a house with or without basement; and a wood floor frame off the ground or a slab floor on a fill. In addition, you can satisfy your preference as to exterior covering, inside wall surfaces, windows, and floor finish.



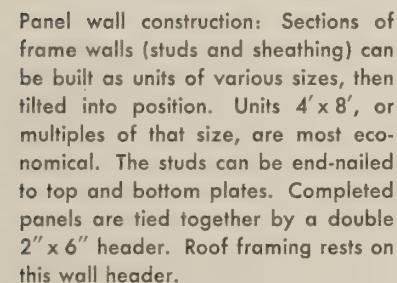
Typical construction for wood-frame house with basement. Ground line varies from 8-inch minimum below sill, as shown, to about 24 inches.



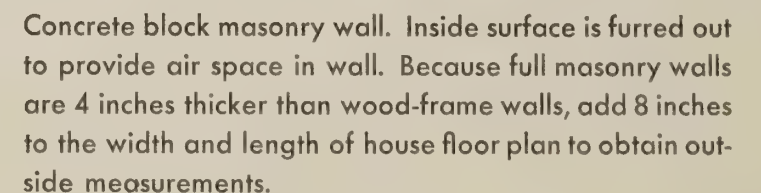
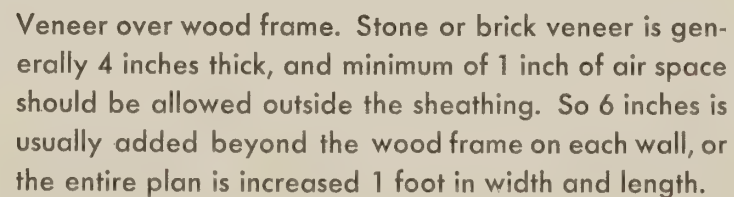
Alternate construction for wood-frame wall and floor above crawl space. Top of foundation should be at least 8 inches above ground line outside. Excavate to depth of 24 inches or more beneath the floor.



Structure combining masonry foundation, wood-frame wall, and floor slab on ground.



Alternate construction for concrete floor and wood frame. Slab is thickened at edges and mesh reinforcement is used throughout.



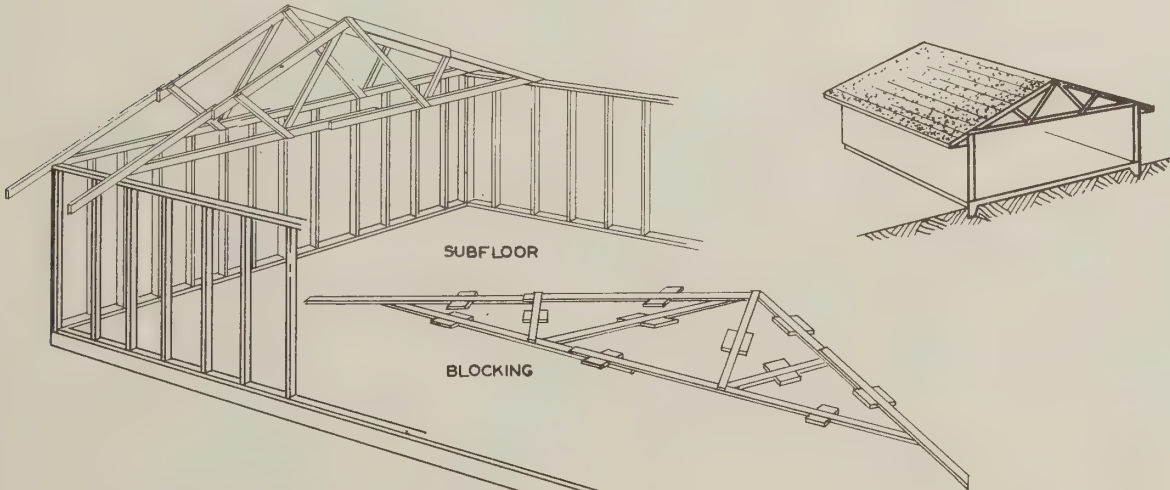
ROOF CONSTRUCTION

ROOF TRUSS. The truss is a relatively new trend in house roof framing. It supports the roof from wall to wall, permitting maximum flexibility of space planning since interior posts or bearing walls are not needed; the design lends itself to standardization, mass production, or pre-assembly at the building site.

The gable truss shown here is for houses from 20 to 32 feet wide. Roof slopes vary, but a rise of 5 inches in each 12 inches of horizontal distance, designated as "5-12,"

is suitable and widely used. A slope of 6-12 is about the steepest one-story trussed roof in common use. Designs for lesser slopes are available, however, down to 1 inch of rise in 12 inches of run.

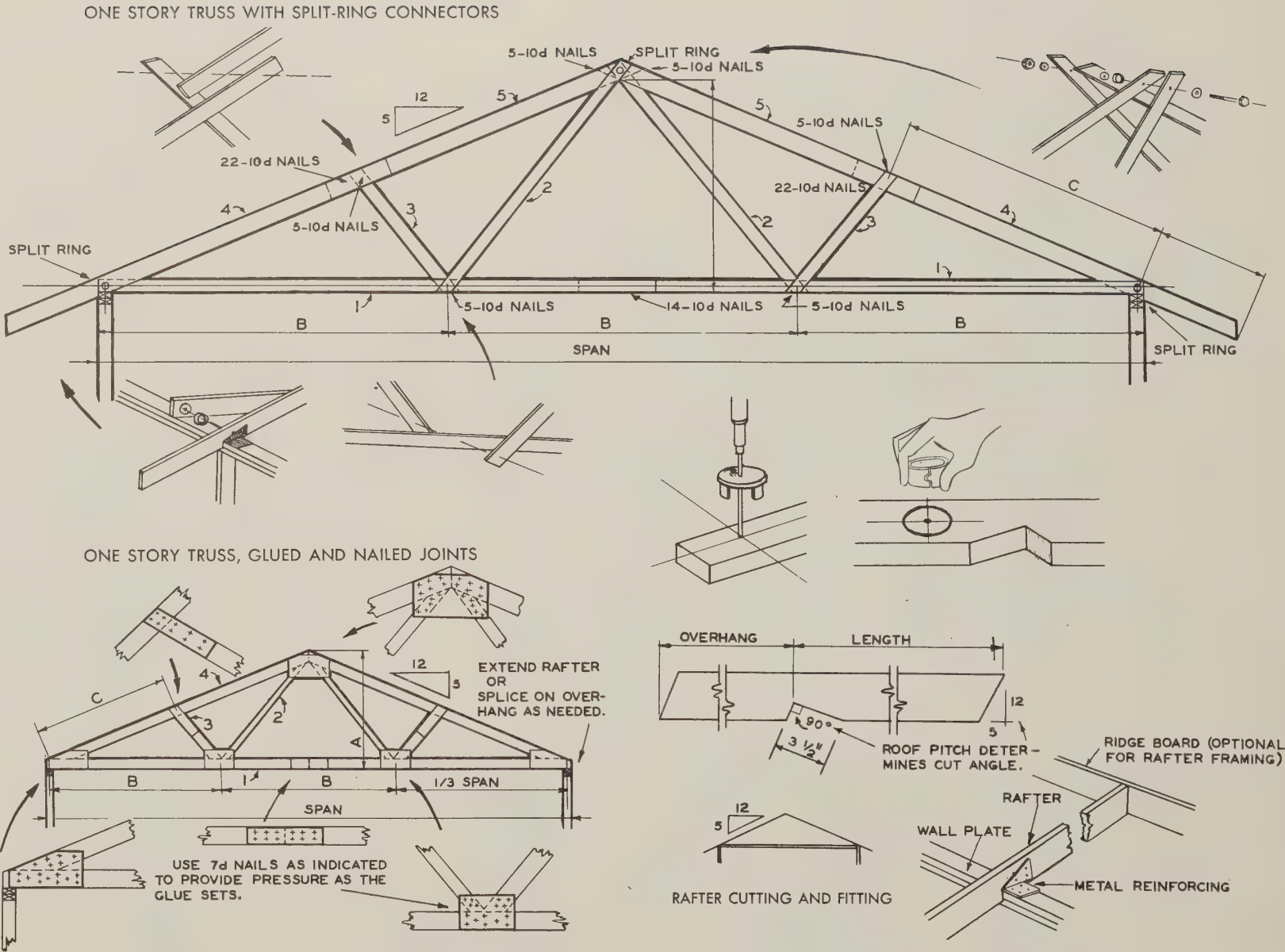
The illustrations show how trusses may be assembled on the site, and layouts are shown for both split-ring and glue-nail trusses. Measurements and dimensions are tabulated for four different widths of houses.



A SIMPLE JIG, FORMED BY NAILING GUIDE BLOCKS TO A LEVEL SURFACE, CAN OFFER A FAST, UNIFORM METHOD OF TRUSS ASSEMBLY.

USE 5/8" EXTERIOR GRADE PLYWOOD GUSSET PLATES ON EACH SIDE OF THE BUTT JOINTS. GLUE WITH CASEIN OR RESORCINOL RESIN GLUE.

USE 7d NAILS AS INDICATED TO PROVIDE PRESSURE AS THE GLUE SETS.



Dimensions for jig layout for truss with split-ring connectors

Length of dimension lines marked:			
SPAN	A	B	C
(feet)	(feet, inches)	(feet, inches)	(feet, inches)
20	4-2	6-8	5-5
24	5-0	8-0	6-6
28	5-10	9-4	7-7
32	6-8	10-8	8-8

Lumber size and length from which members are cut for truss with split-ring connectors

Size and length of pieces numbered:					
SPAN	1	2	3	4	5
(feet)	(inches, feet)	(inches, feet)	(inches, feet)	(inches, feet)	(inches, feet)
20	2 x 4 12	1 x 4 7	1 x 4 4	2 x 4 10	2 x 4 7
24	2 x 4 14	2 x 4 7	1 x 4 4	2 x 4 10	2 x 4 8
28	2 x 4 16	2 x 4 8	2 x 4 5	2 x 6 12	2 x 6 10
32	2 x 4 18	2 x 4 10	2 x 4 5	2 x 6 14	2 x 6 12

Dimensions for jig layout, glued and nailed truss

Length of dimension lines marked:			
SPAN	A	B	C
(feet)	(feet, inches)	(feet, inches)	(feet, inches)
20	4-8	6-8	5-5
24	5-6	8-0	6-6
28	6-4	9-4	7-7
32	7-2	10-8	8-8

Lumber size and length from which members are cut for glued and nailed truss

Size and length of pieces numbered:					
SPAN	1	2	3	4	
(feet)	(inches, feet)	(inches, feet)	(inches, feet)	(inches, feet)	(inches, feet)
20	2 x 6 10	2 x 4 7	2 x 6 4	2 x 6 12	
24	2 x 6 12	2 x 4 7	2 x 6 4	2 x 6 14	
28	2 x 6 14	2 x 4 8	2 x 6 5	2 x 6 16	
32	2 x 6 16	2 x 4 9	2 x 6 5	2 x 6 18	

Rafter sizes for roof slopes from 5 to 8 inches per foot

Size when rafter spacing is:

HOUSE WIDTH (feet)	16 INCHES (inches)	24 INCHES (inches)
16-20	2 x 6	2 x 6
22-24	2 x 6	2 x 8
26	2 x 8	2 x 8
28-32	2 x 10	2 x 10

Ceiling joist sizes for spans and spacing listed

Size when joists are spaced at intervals of:

SPAN (feet)	16 INCHES (inches)	24 INCHES (inches)
8-10	2 x 6	2 x 6
11-12	2 x 6	2 x 8
13	2 x 8	2 x 8
14-16	2 x 8	2 x 10
17	2 x 10	2 x 10
18	2 x 10	2 x 12

Beam sizes to support roof load at the spans and spacings listed

Where two sizes are listed, either is suitable.

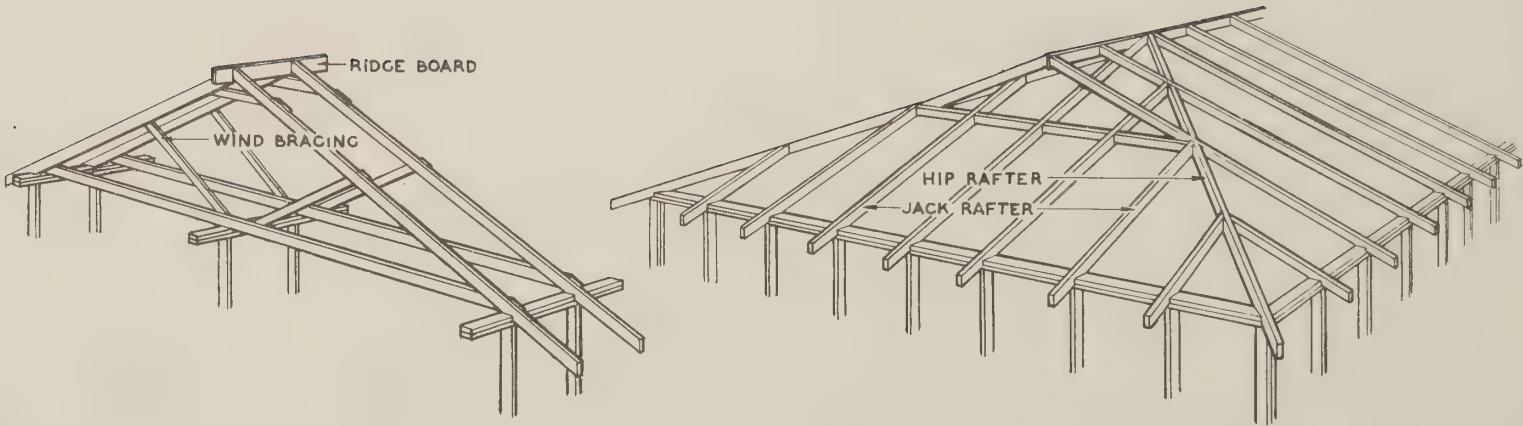
Size when beams are spaced at intervals of:

SPAN (feet)	4 FEET (inches)	5 FEET (inches)	6 FEET (inches)	7 FEET (inches)	8 FEET (inches)
10	3 x 6 2 x 8	4 x 6 3 x 8	5 x 6 3 x 8	6 x 6 4 x 8	6 x 6 4 x 8
11	4 x 6 3 x 8	5 x 6 3 x 8	3 x 8	4 x 8	4 x 8
12	4 x 6 3 x 8	3 x 8	4 x 8 3 x 10	4 x 8 3 x 10	5 x 8 3 x 10
13	3 x 8	4 x 8	4 x 8	5 x 8	6 x 8
14	6 x 6 4 x 8	4 x 8	5 x 8	6 x 6	4 x 10
15	4 x 8 3 x 10	3 x 10	6 x 8 2 x 14	4 x 10	5 x 10 8 x 8
16	3 x 10	6 x 8 4 x 10	4 x 10	5 x 10	8 x 8 6 x 10

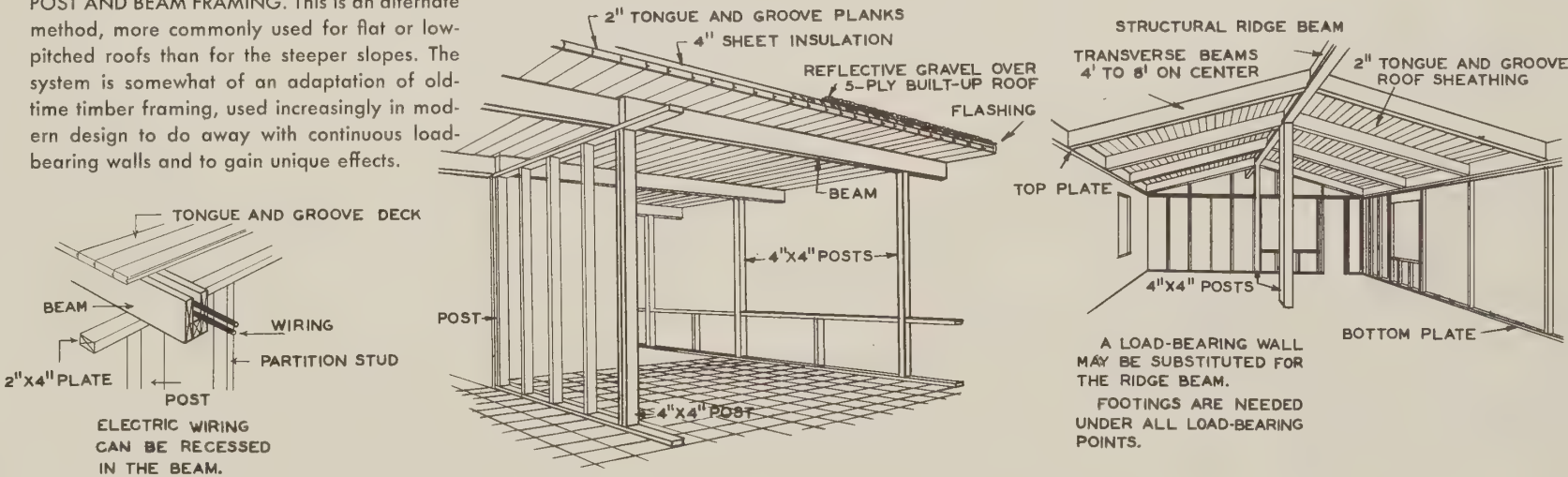
Size of beams spaced 2 feet to serve as roof joists should be selected according to span as follows: 2 x 6 for 8-foot spans, 2 x 8 for 9 or 10 feet, 2 x 10 for 11 to 15 feet, and 2 x 12 for spans of 16 to 18 feet.

JOIST AND RAFTER FRAMING. This is the long-established, conventional method of roof framing. It consists of ceiling joists, rafters, and various ties, braces, and supports. If the house is wider than 16 feet, an intermediate wall or beam is necessary to provide support for the joists.

Rafters are individually cut and placed, both in the gable and hip-roof types. Or they may be fitted to form the gambrel-roof shape. The tables show joist and rafter sizes within the common range of dimensions and spacing. Wind bracing, ridge ties, and sometimes posts and purlins are a part of the roof frame.



POST AND BEAM FRAMING. This is an alternate method, more commonly used for flat or low-pitched roofs than for the steeper slopes. The system is somewhat of an adaptation of old-time timber framing, used increasingly in modern design to do away with continuous load-bearing walls and to gain unique effects.



ROOF COVERINGS. The most widely used house roof covering is the 3-in-1, square-tab, asphalt-composition strip shingle in weights of 210 to 230 pounds per square. Other styles and weights, colors and textures are available.

The standard for wood shingles is western red cedar in clear, edge grain, heartwood. Other species are available in certain areas, some shingles are factory treated with preservative, and extra heavy shakes are used occasionally.

Asbestos-cement shingles weigh 250 pounds or more per square and may be obtained in a variety of shapes, colors, and textures. They are usually laid in American method style like ordinary wood shingles, or they can be turned with the long way horizontal to lay in Dutchlap.

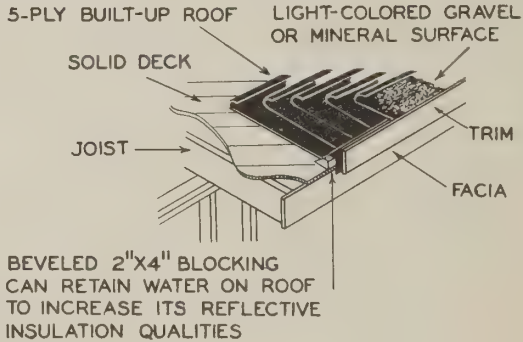
Shingle roofings are most satisfactory on roof slopes of 5-12 or steeper but they are suitable for 4-12 slopes if underlaid with 30-pound roofing felt and otherwise applied according to manufacturer's directions.

Built-up roofing should be used on surfaces that slope less than 4 inches in 12 inches. Five-ply felt roofing with the plies mopped on with asphalt and topped with mineral surface is the most suitable. Built-up roofing should be applied by an experienced roofer and be guaranteed for 10 years or longer.

Other roofings used only to a limited extent on houses of the type shown in this book include slate, ceramic tile, metal, and asphalt roll.

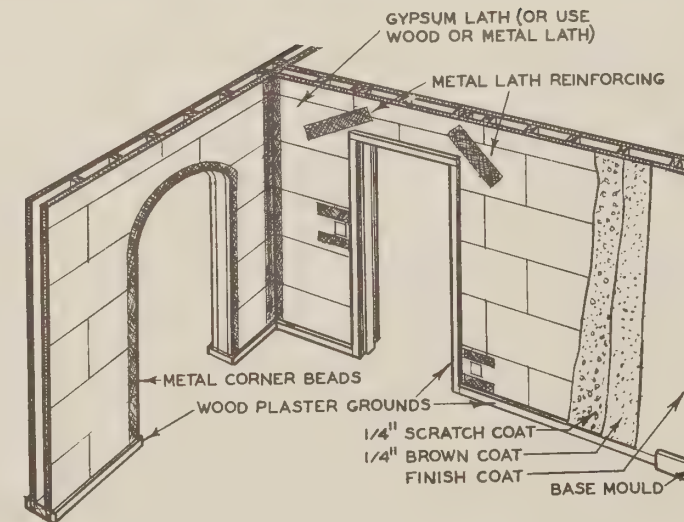
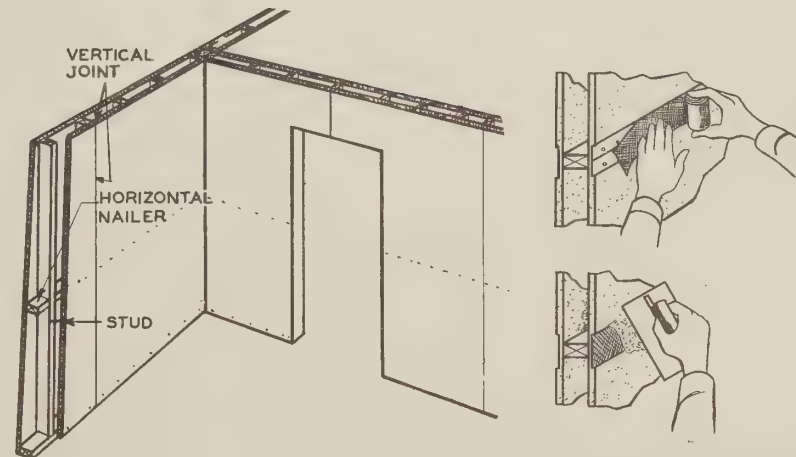
ROOF SLOPES. The current trend is toward low-pitched or flat roofs for one-story houses. Slopes of 6-12 and 5-12, described for the trussed roof, are widely used because they are suitable both as to structure and covering. Steeper slopes are more common in houses where attic storage space is wanted or where upstairs rooms are to be finished. But other slopes, ranging from 1-12 to 12-12 are used, and designs are available for them.

The steepness of a roof is also designated by its "pitch," which is the proportion, or ratio, of the total rise to the total span covered by the truss or a pair of rafters. Thus the common pitches are stated as fractions, 1/4, 1/3, 1/2, 2/3, and 1/1; or they are often referred to respectively as, quarter, third, half, two-thirds, and full pitch.



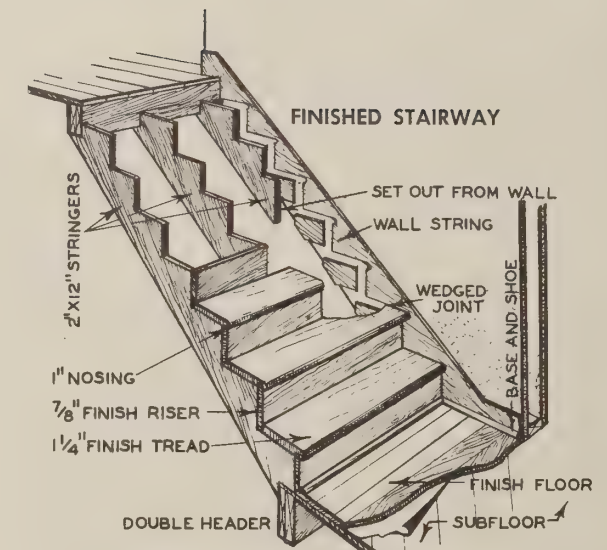
INTERIOR CONSTRUCTION AND FINISH

Your choice of wall surface is generally between drywall and plaster. The most widely used drywall is $\frac{3}{8}$ " or $\frac{1}{2}$ " gypsum wallboard either with taped, cemented, and sanded joints; or square-edged sheets with joints revealed or stripped. Other drywall materials include fiberboards, fir plywood, hardwood veneers, and paneling in a variety of types and species of wood.

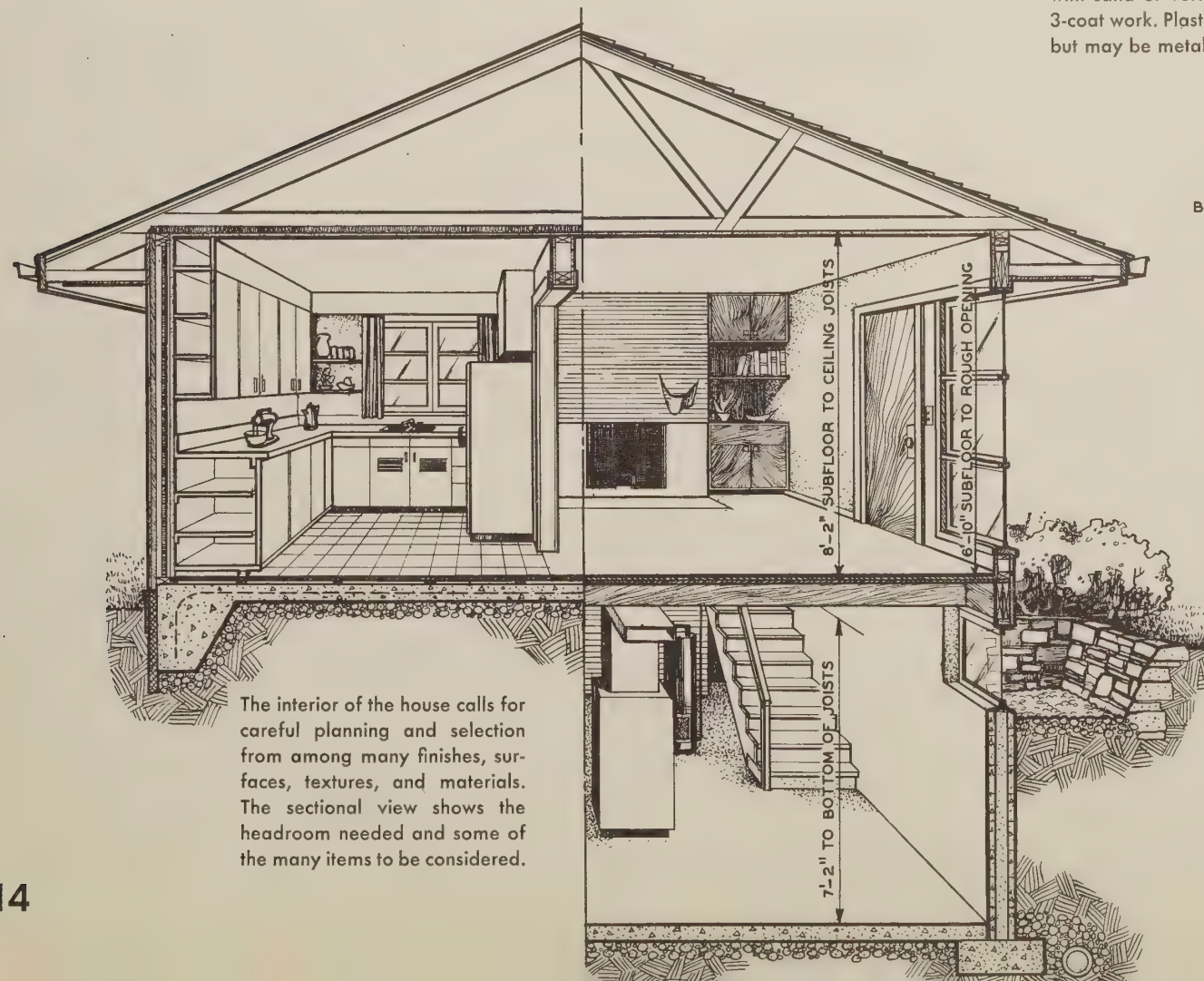


Plastered walls consist mainly of gypsum plaster with sand or vermiculite aggregate applied as 3-coat work. Plaster base is usually gypsum lath, but may be metal mesh or fiberboard. Surfaces

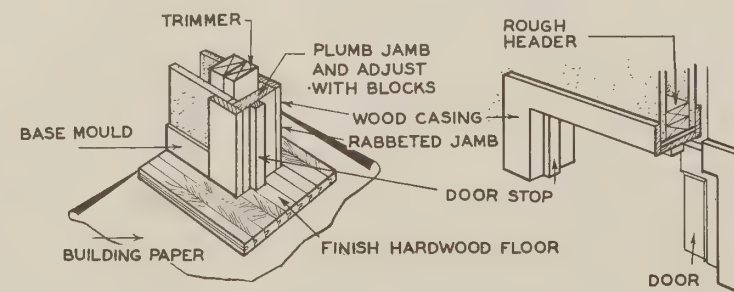
are finished smooth for enamel or wallpaper, but sand finish or other rough textures are often used with paint finishes. Sometimes brick, blocks, or stone are exposed on one or more walls.



Avoid winding steps. Use level landing for turns.

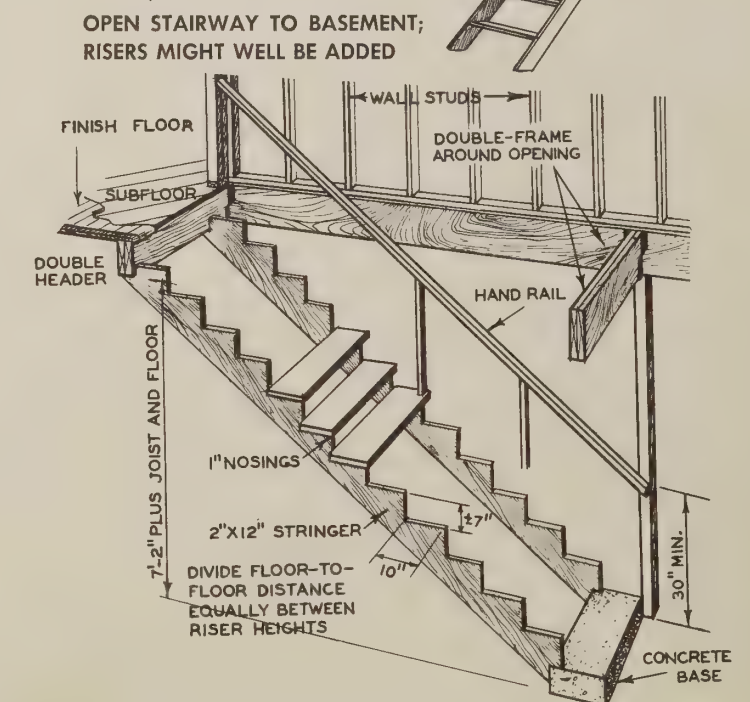


The interior of the house calls for careful planning and selection from among many finishes, surfaces, textures, and materials. The sectional view shows the headroom needed and some of the many items to be considered.



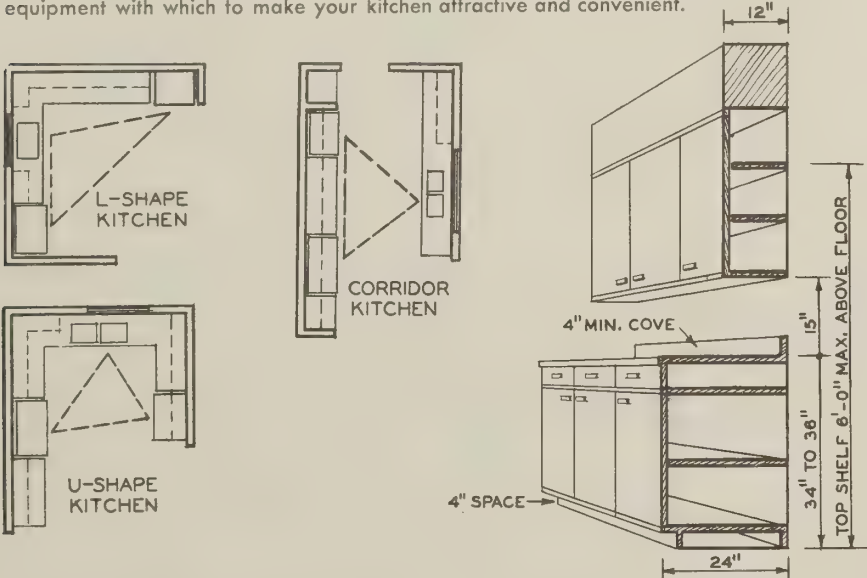
FLOOR COVERINGS. As you shop for floor coverings compare kinds, qualities, and prices along with appearance and ease of maintenance. Avoid hardwood flooring in kitchen, bath, and workroom where floors require frequent mopping. Low-cost flooring may be used where the floor is to be carpeted.

The more common among the many choices of floor coverings are: (1) inlaid linoleum or vinyl plastics cut from wide rolls; (2) various kinds of tiles for kitchen, bath, workrooms, and often on concrete slab floors throughout the house; (3) exterior-type plywood or matched soft-wood flooring in rooms that are to have wall-to-wall carpeting; (4) concrete with the surface either plain, stained, or painted in basement and workroom; and (5) hardwood flooring, mainly oak, in living, dining, and sleeping rooms if a polished wood surface is desired.

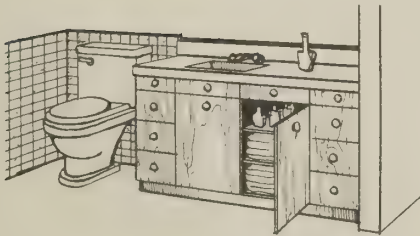


HOUSEHOLD STORAGE

KITCHEN STORAGE. Bulletins and plans are available from the state colleges of agriculture and the U. S. Department of Agriculture on arrangement, size, amount, and kind of storage for the kitchen. Manufacturers have provided an excellent array of ready-made units. Local cabinetmakers and skilled carpenters on the job often build storage cabinets special for each house. Thus you have an almost unlimited choice of equipment with which to make your kitchen attractive and convenient.

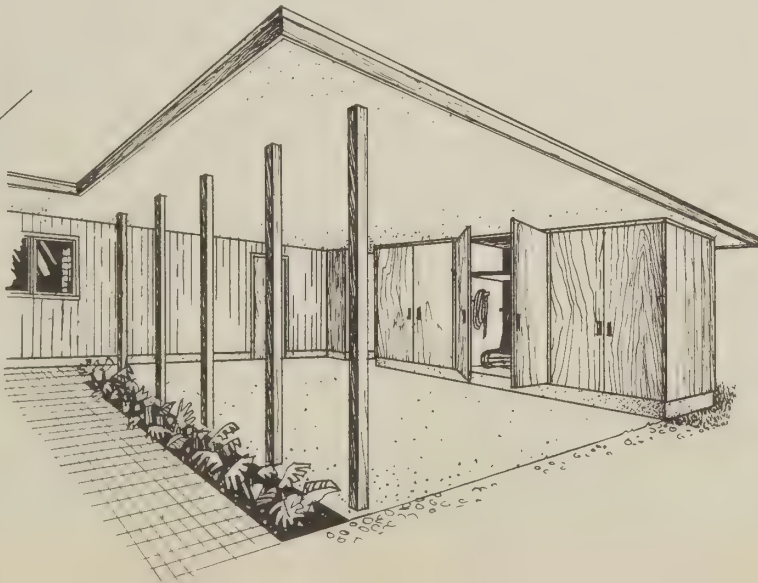


Appliances, work surfaces, and wall and base cabinets are generally installed in the familiar L, U, or corridor arrangement, depending on the positions of openings and the floor plan of the rest of the house.



Bathroom storage can be provided either in cabinets under lavatory table tops or in wall cases.

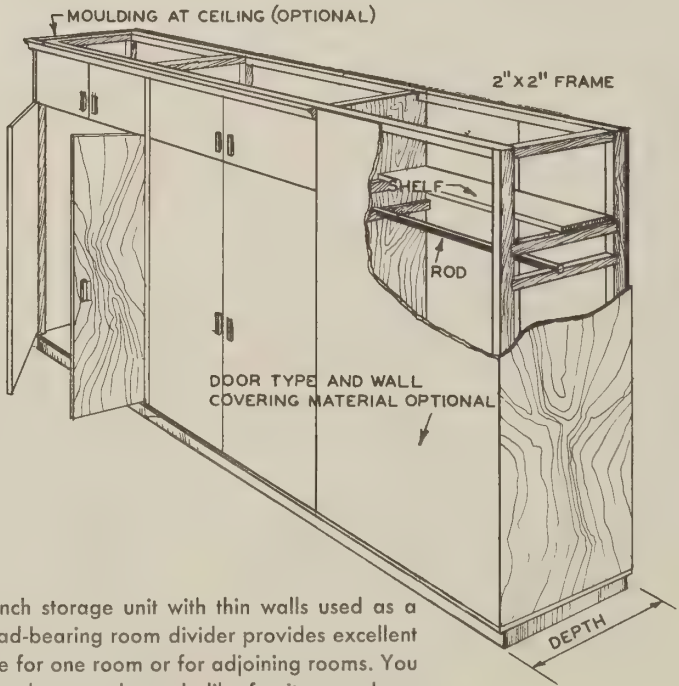
Carport or garage storage is a necessity for playground equipment, yard and garden tools, and miscellaneous articles. For neatness and convenience such storage should be fully enclosed in lockers, cabinets, or storerooms.



Closet-type storage units provide maximum capacity and accessibility if they are about 24 inches deep, front to back, extend to the ceiling, and are made with full front opening with sliding or folding doors.



Storage units can be divided in many ways to provide full-depth side-by-side units or shallow back-to-back cabinets and shelves.



A 24-inch storage unit with thin walls used as a non-load-bearing room divider provides excellent storage for one room or for adjoining rooms. You can buy these ready-made like furniture, or have them built on the job to meet your particular need.

Storage Depths

4" DEPTH (Front to Back)
carpentry tools
most canned foods
glassware
toilet articles

8" DEPTH
large canned goods
dinnerware
packaged foods

12" DEPTH
books, magazines
dinnerware
kitchen utensils
packaged foods
toys

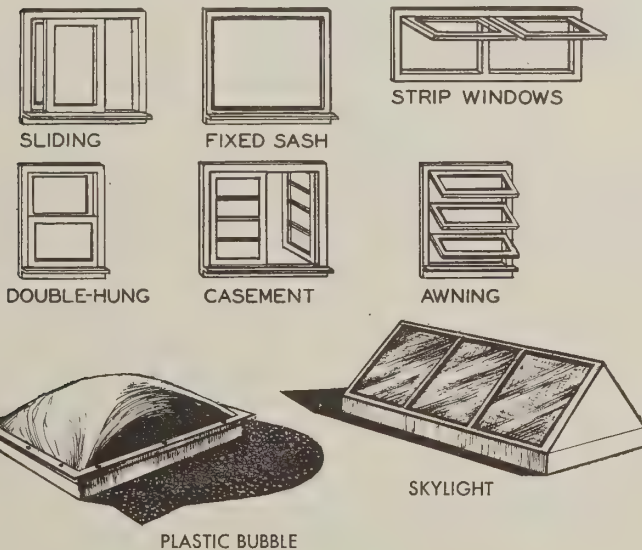
16" DEPTH
bathroom supplies
bedding
linen
cleaning equipment
clothing on hooks
radio and records
musical instruments
sport equipment
fireplace wood

24" DEPTH
clothing on hangers
card table, chairs
folding bed
sewing equipment
infant's equipment
luggage
bedding
cleaning equipment

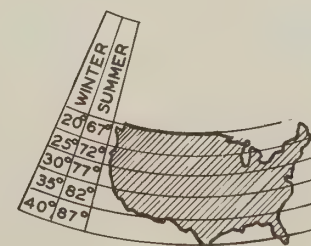
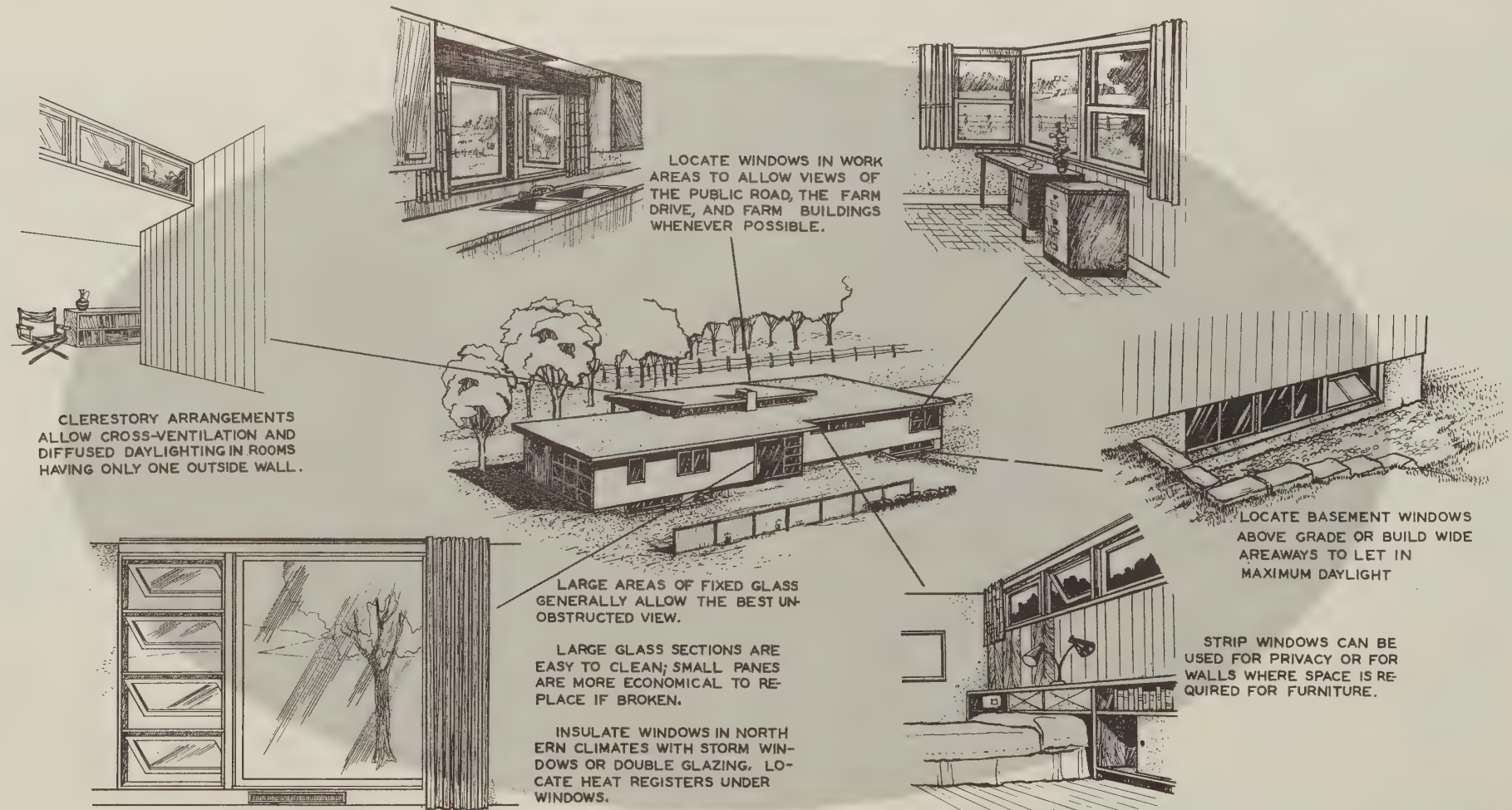
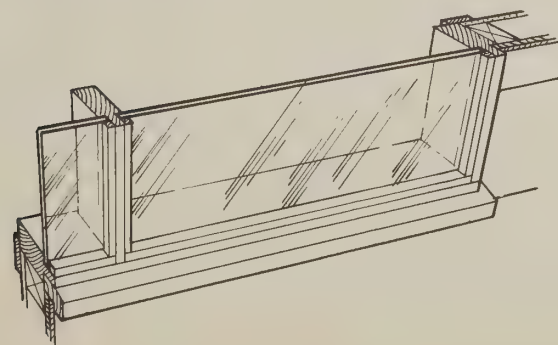
WINDOW SELECTION AND PLACEMENT

WINDOWS. Select windows of the approximate size and arrangement shown in the elevation drawings on the plan pages; or choose the kind you want from among those in dealers' stocks or manufacturers' catalogs. But restrict the selection to relatively few types and sizes in any one house. Generally specify B-grade glass.

Either wood or metal sash and frames may be used. They should usually be factory-made, with weatherstripping and sash balances, or with other features as may be necessary for satisfactory performance. Be sure the windows are a type that can readily be fitted with screens and perhaps storm sash.

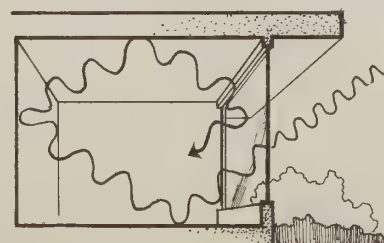


Double-glazed insulating-type windows, usually with plate glass, are favored for fixed sash in the larger sizes, although they are available in various common standard windows also. Low-cost, fixed-sash windows are sometimes made on the job by setting glass sections in mastic between wall-framing members.

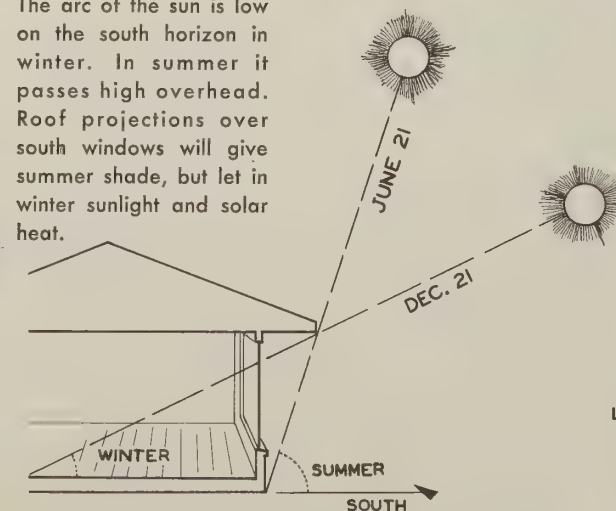


The noon angle of the sun's rays varies by latitude and by season.

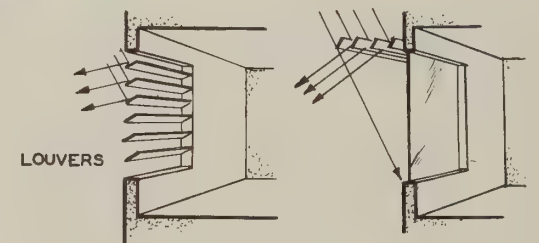
Most heat rays from the sun will pass through glass. After striking an opaque surface the wavelengths of the rays are changed and they cannot go through glass again. Heat is trapped inside the house.



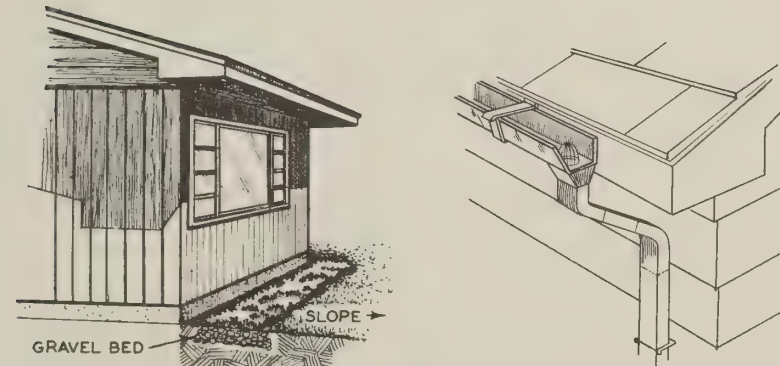
The arc of the sun is low on the south horizon in winter. In summer it passes high overhead. Roof projections over south windows will give summer shade, but let in winter sunlight and solar heat.



For summer control, block the sun's heat before it gets inside. If roof extensions or protective plantings are not feasible, use devices which will not block daylight or desirable views.

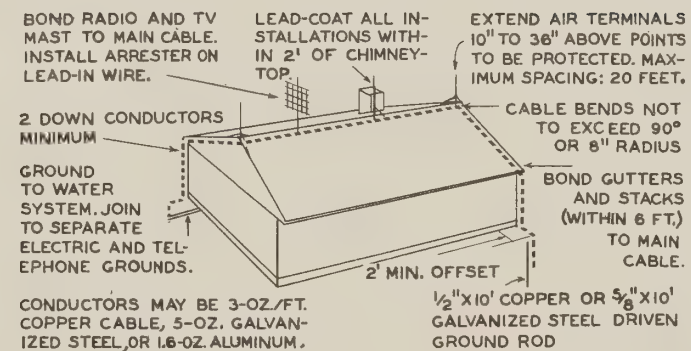


OUTSIDE CONSTRUCTION

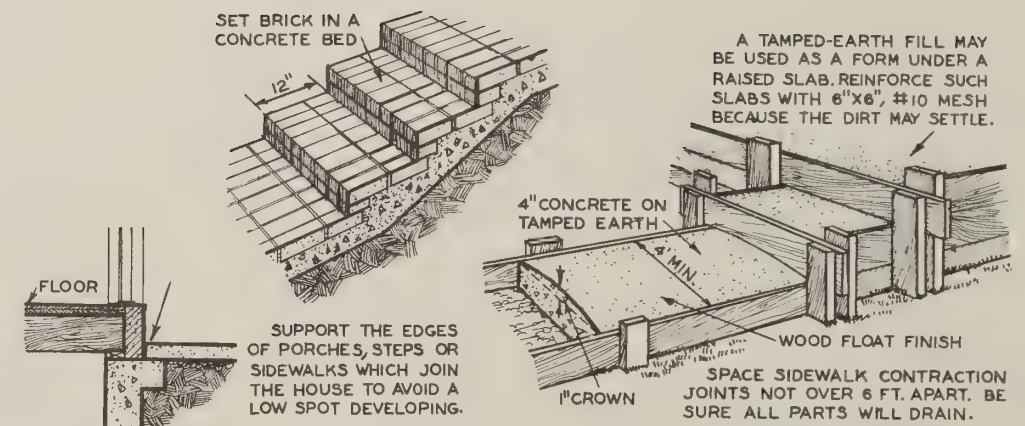


GUTTERS. Square-edge, or box-type, gutters and downspouts are generally more suitable than round styles. Choose among 26-gage galvanized steel, .032 aluminum, and 16-ounce copper. Occasionally roof gutters of redwood, cedar, or cypress can be used effectively.

You may not need gutters at all if the roof extends a foot or more beyond the wall; if soil washing is not a serious problem; and if plantings or a crushed-rock surface strip, or both, are used to control splash at ground level.

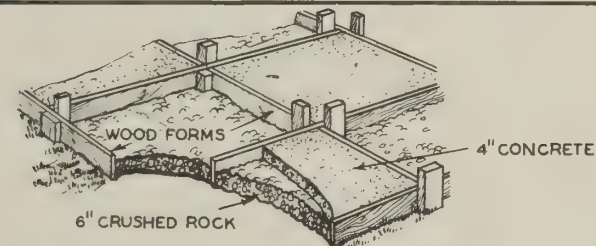


LIGHTNING PROTECTION. Rodding and grounding are particularly important in localities where lightning storms are frequent and on buildings set apart from other structures or tall trees. Installations should meet the requirements of the "Code for Protection Against Lightning," and be guaranteed by the supplier.



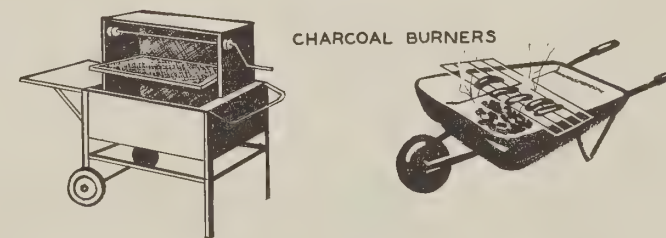
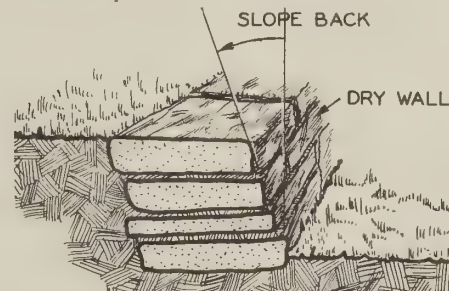
STEPS. The two principal types are brick set in a concrete base, and reinforced, poured concrete. Install handrail if there are more than two or three steps.

SIDEWALK. Make sidewalks 4 feet wide so that two people can walk side by side. The slab should be 4 inches thick and have expansion joints every four to six feet.

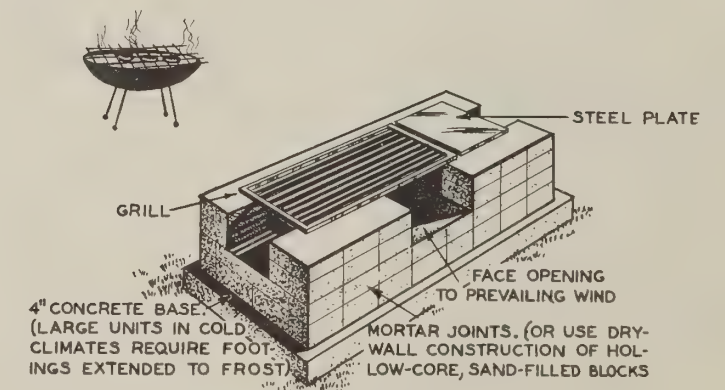


PATIOS. Outdoor surfaced areas should be on drained, even ground. Place masonry surfacing materials — flagstones, bricks, tiles, or concrete units — on a 6-inch sand bed, then fill the cracks with sand. For an especially durable job, place a 2-inch layer of concrete on a crushed rock or gravel fill and set surfacing materials in the wet concrete. Or pave the patio area with 4 inches of concrete laid on gravel fill. Use mineral coloring if desired, finish concrete with wood-float, and mark surface in squares.

TERRACES. On short slopes, rock terraces or masonry retaining walls may be more effective than sodding, both for attractiveness and for ease of handling. A low terrace may be made without mortar.



OUTDOOR COOKING. Fire safety demands care in managing outdoor fires. Outdoor grills and fireplaces of many types are satisfactory; a typical one is illustrated. Often a homemade or manufactured charcoal burner is most convenient for outdoor cooking. It is easily controlled, permits flexibility in use, and takes up little space.



EXTERIOR HOUSE WALLS. Outside wall coverings are usually either wood or masonry, although metal and composition materials are used to some extent. With the variety of textures, colors, and finishes available and the possibility of combining different materials on the same house, you have ample opportunity to get the effect you want. Best results are usually obtained with plain surfaces, painted or stained, and only a few materials in combination. Strikingly attractive effects are possible, however, if professional advice is obtained in making selections.

Durability, cost, and upkeep expense are important factors in

choosing siding, but do not make the selection solely on these points. Compare and price several materials. Give a great deal of thought to the appearance. Observe houses in the community that have different types of coverings.

Manufacturers and dealers can provide helpful information on selecting and installing. Seek the counsel of experienced persons in the planning stage. Employ skilled workmen to apply siding. In general, avoid using cheap coverings that imitate more durable or more expensive materials. The principal choices are:

Wood siding, which is the most widely used covering for single-

family houses. It is applied vertically as plain boards and battens, car-siding, and V-joint paneling; or horizontally as drop or bevel siding, and in the form of panels, shingles, and shakes.

Face brick in various colors and textures, and common brick plain or painted.

Stone veneer, as quarried or field stone; or artificial stone in a range of colors, textures, and kinds.

Asbestos-cement and asphalt compositions available as shingles,

siding, imitation shakes, and large sheets. Asbestos-cement sheets are usually finished with wood batten strips to simulate vertical boards.

Exterior-type plywood and hard panelboard in any one of several forms.

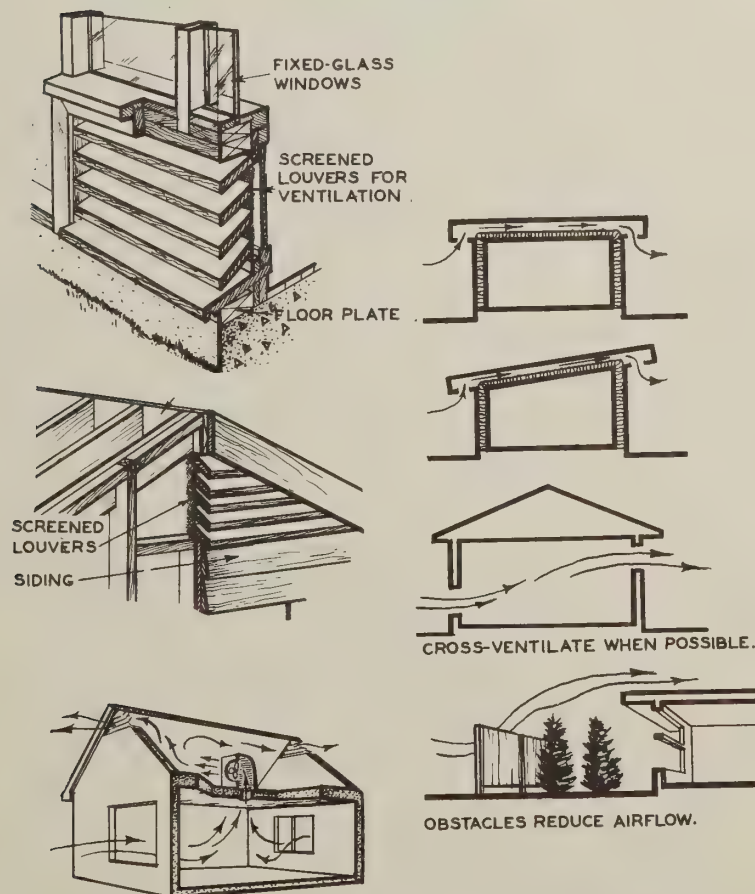
Concrete masonry units, generally painted but sometimes plastered.

Metal, 24-gage steel or .032 aluminum in suitable shapes and sizes; plain, or factory-enameled, or already primed for painting.

VENTILATING, AIR CONDITIONING, AND HEATING

VENTILATION. Today's well-built home is so tightly constructed that little natural air change occurs when the house is closed. It is necessary therefore to induce positive air circulation in order to obtain at least partial control of temperature and moisture.

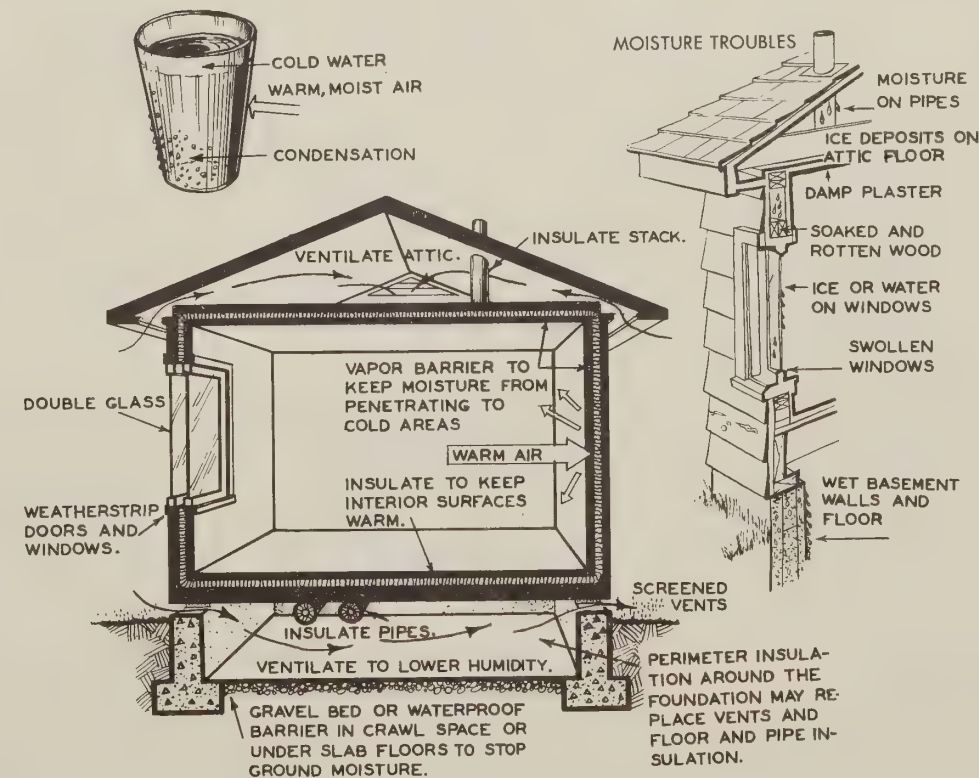
The usual provisions made for air circulation, some of which are shown here, include cross-ventilation by means of windows or other openings in two or more walls, portable electric fans, attic fans, and exhaust fans in kitchen or workroom. It is particularly important also to have grills, vents, or louvers at gable ends, under the eaves, or in walls to circulate air within the structure or back of insulating layers.



SUMMER COMFORT. Using an attic fan and smaller portable fans and shutting out some of the heat during the day will help to keep the house cool in summer. But air conditioning is necessary to obtain the desirable condition of relative humidity below 60 percent and temperature around 75 to 80 degrees. Room-size units can be used to air condition only parts of the house. For a more complete installation, use a single central air-conditioning system.

CONDENSATION CONTROL. When warm moist air is chilled, as for example by coming in contact with a cold surface, the cooling effect causes moisture to condense as water or frost. Ventilation helps to minimize moisture troubles. Insulating is important to prevent loss of heat as well as to reduce the area of cold surfaces where moisture could condense.

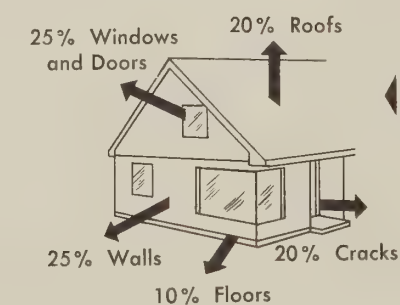
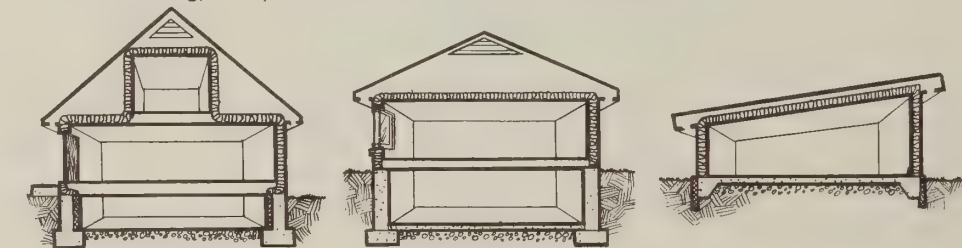
But to safeguard against damage from condensation, be sure your building program includes such devices as vapor barriers at or near the roomside surface of the exterior wall or ceiling; weatherstripping of doors and windows; storm sash or double-glazed windows in colder areas; and aeration of crawl space and a covering over the ground surface under basementless houses.



INSULATION. Commercial insulating materials are about three times as effective as solid wood in preventing the transfer of heat. Considering wood as having a value of "1" for each inch of thickness, typical insulating materials have a resistivity of perhaps 3.0 and a conductivity of about 0.3 per inch of thickness. In comparing one type with another, the highest insulating value is afforded by materials that have the highest resistivity, and therefore the lowest conductivity. Reflective insulation has a value about equal to that of 1½ inches of wood for each reflective surface exposed to the air.

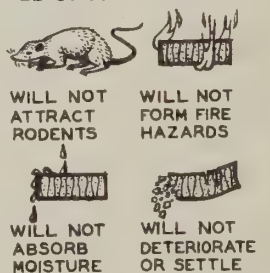
Use flexible insulation in blanket or batt form between upright framing members, in joist spacing above ceiling, and in roof frame between rafters. Place vapor barrier next to the room side; provide for air circulation outside of the insulating layer.

Fill-type insulation may be used in attics or on other horizontal surfaces, for blowing into inaccessible places, and in sidewalls of houses during remodeling. Reflective foil may be used on the back of wallboard, or in overhead or sidewall installations where the reflective surface is exposed to an air space. Fiber-board insulation can be used as wall sheathing, as a plaster base, or as an interior wall surface.



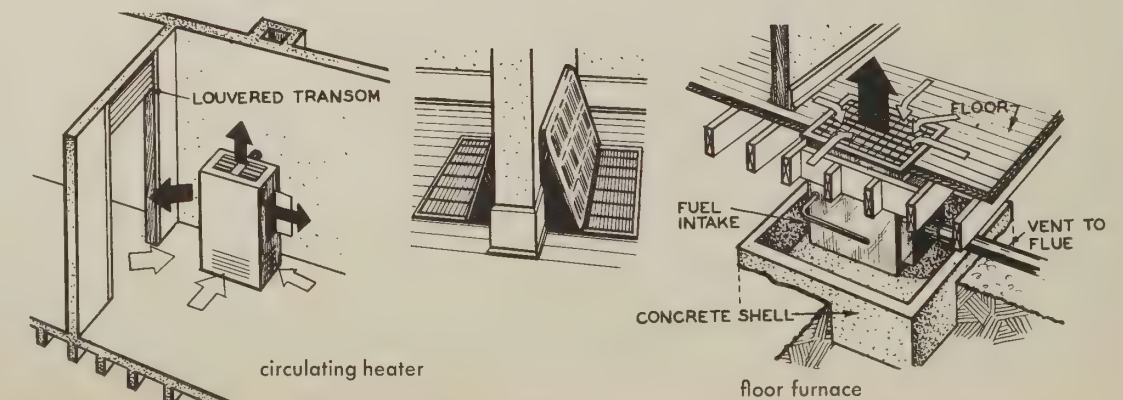
Uninsulated houses lose heat about equally from windows, sidewalls, roof, and cracks or leakage. Thus good tight construction is a requirement for effective winter heating and summer air conditioning.

GOOD INSULATION SHOULD BE OF A TYPE THAT:



HOUSE HEATING. No matter where you live, you can usually obtain the fuels and electric service that make it possible to have almost any available type of heating that you want. It is most important that you get a system that is reliable and safe, with ample capacity, and as nearly automatic as possible. The reliability of the fuel supply and its convenience are more important than cost as a basis for deciding on one fuel or another. You have a choice of oil, natural or liquid petroleum gas, or coal. Coke is not generally available, wood has only limited use, and electricity is mainly for radiant panels or for a heat pump.

For low-cost installations or for very small houses, the choice may be ordinary space heaters, circulating heaters, or floor or wall furnaces. Such systems have few controls, however, and may not provide the amount of heat or the even distribution that you would want.



CENTRAL HEATING

The best solution to your house-heating problem is likely to be a central unit that warms the entire house. The system should be fitted to the climate, the type of house, and the capacity needed.

Besides the choice of fuel — usually coal, gas, or oil — you can select either a warm-air or a hot-water type. The system should be as nearly automatic as possible with room thermostat, high-limit control, positive circulation with air fan or water pump, and provision for installing complete air conditioning either now or later.

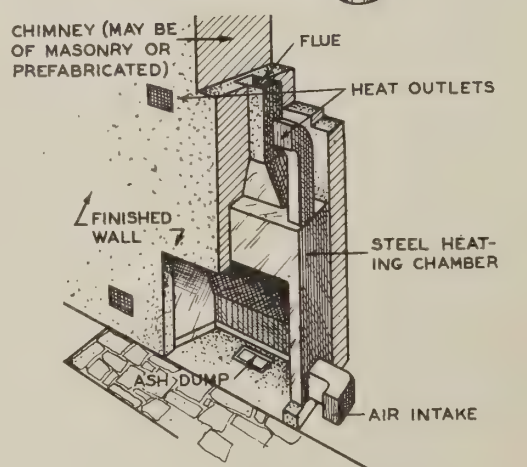
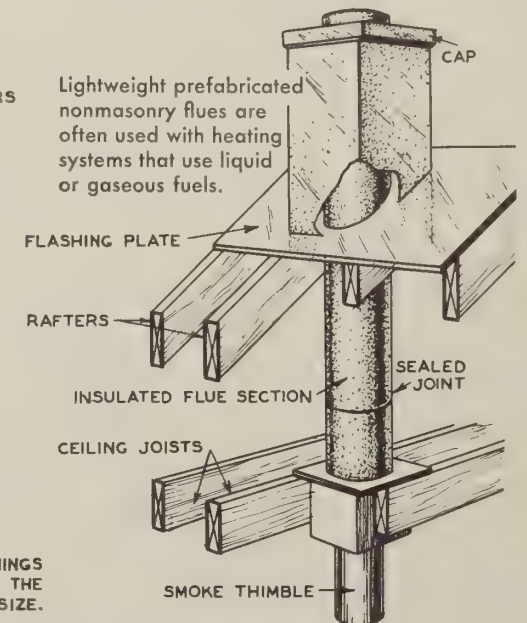
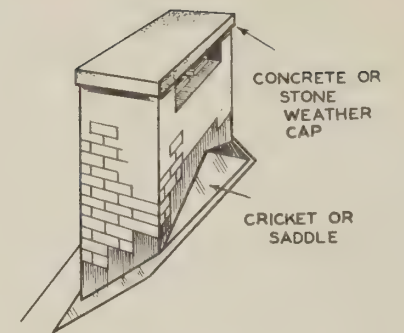
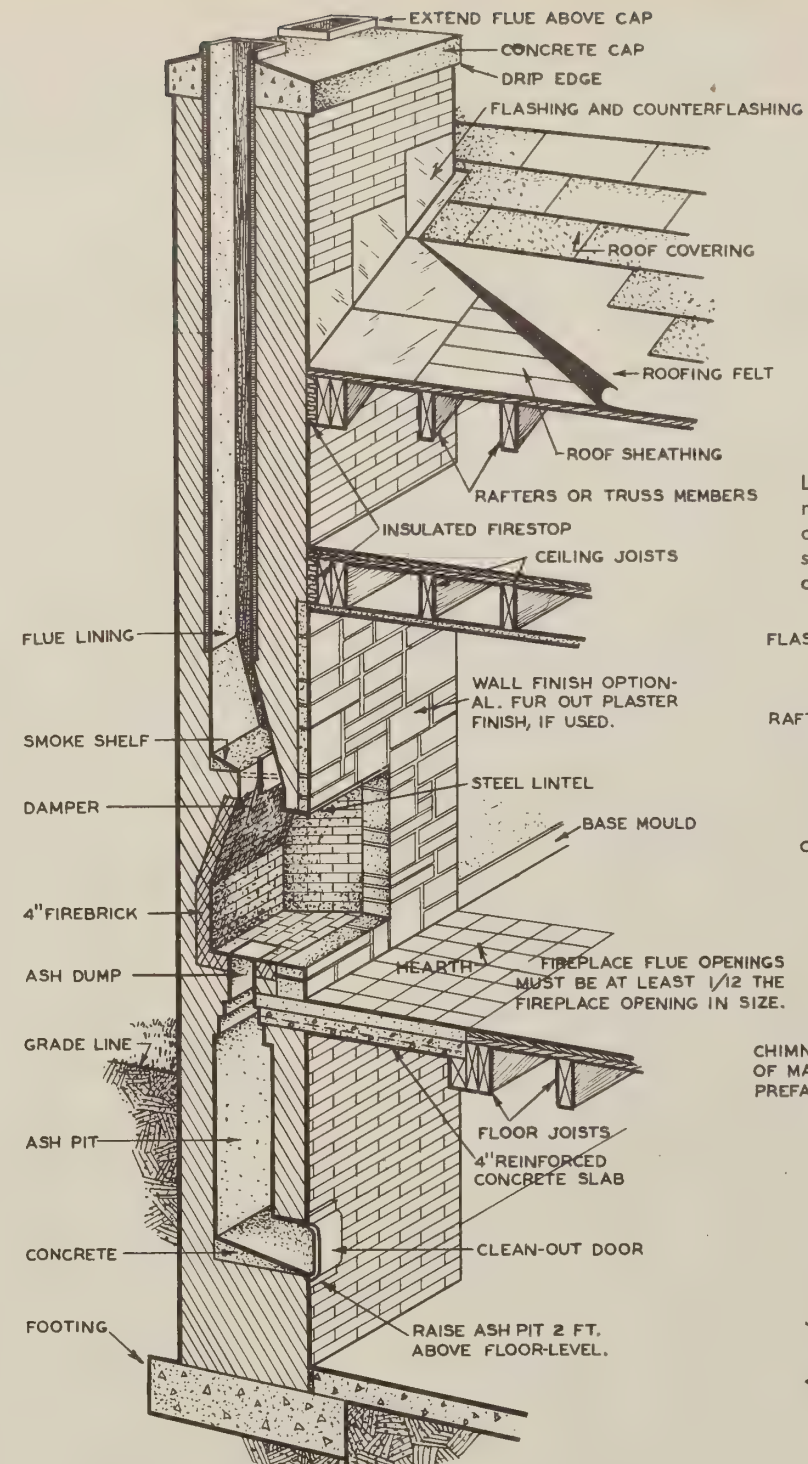
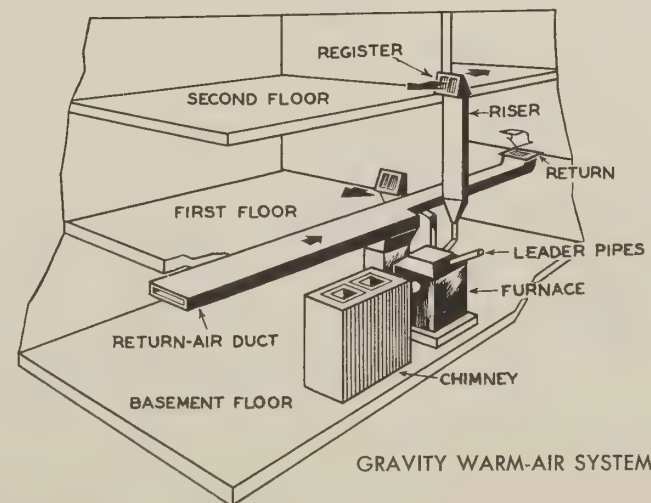
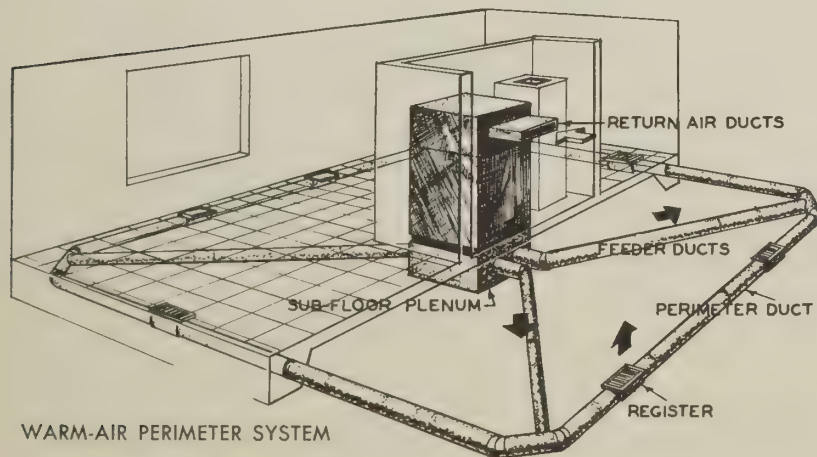
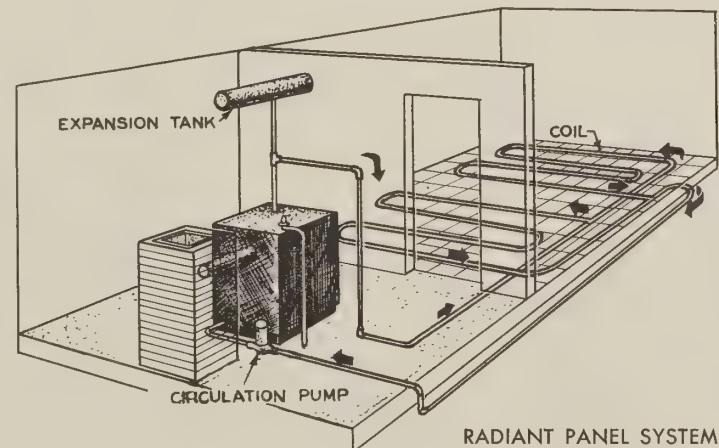
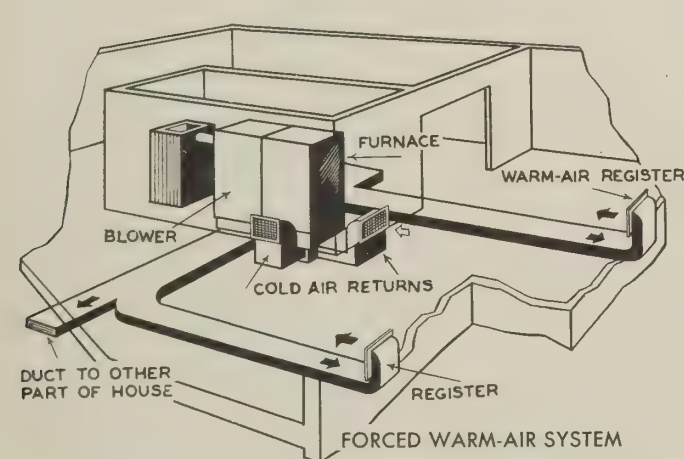
FORCED WARM-AIR SYSTEM. This equipment is fired by oil, gas, or coal. It has thermostat control and a fan to circulate warm air.

RADIANT PANEL SYSTEM. This equipment utilizes hot-water coils in floor or ceiling panels to provide warmth from the heated surfaces. A variation provides warm-air chambers instead of hot-water coils.

A similar heating unit circulates hot water through pipes and coils made to resemble baseboard trim in the popular baseboard-radiator system.

WARM-AIR PERIMETER SYSTEM. Especially designed for use with concrete floor. Ducts near the edge of the slab, with registers in each room, help to keep floor warm.

GRAVITY WARM-AIR SYSTEM. This system is designed for small 1-story or compact 2-story houses with basement. It lacks some desirable controls, particularly for the positive circulation of air.



CHIMNEYS AND FIREPLACES

Each fireplace, furnace, or stove requires a separate vent, duct, flue, or chimney. Wood- or coal-burning fireplaces, furnaces that require solid fuel, and in some cases oil or gas heating units are attached to masonry flues having fire-safe terra cotta lining. A single masonry chimney stack may contain two or more separate flues for fireplace, furnace, and water heater or stove.

Extend chimneys two feet or more above the high point of the roof. Flue linings should project a few inches above the chimney. A concrete cap is put on to hold the bricks in place and prevent weather damage.

If a flat weather cap is used, the area on each side should be four times the flue size.

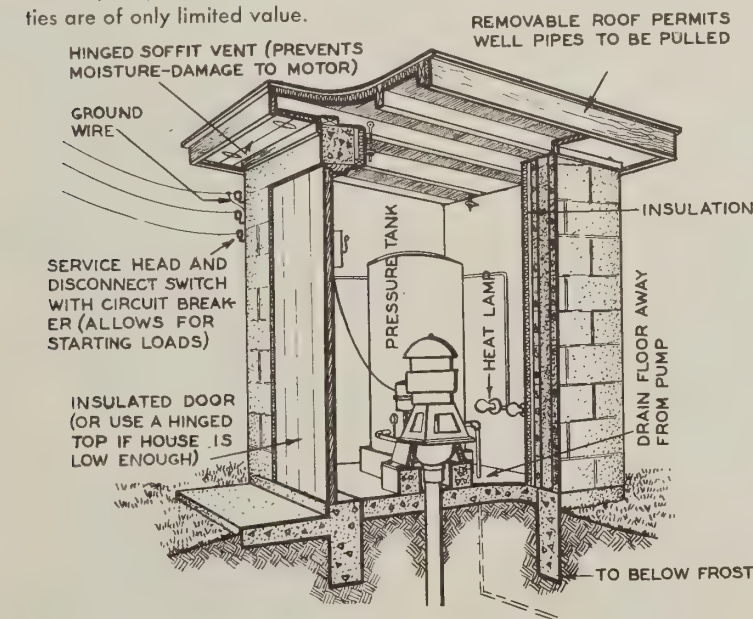
Lightweight, prefabricated flues may be used with oil or gas-fired heating units. They should carry Underwriter's approval label denoting acceptable fire-safe features.

Metal fireplace liners are helpful in getting a good construction job. The liner, together with ducts and registers, increases the heating capacity of the fireplace. But if the house has a central heating system, a fireplace has little or no value as a heating unit.

UTILITIES AND EQUIPMENT

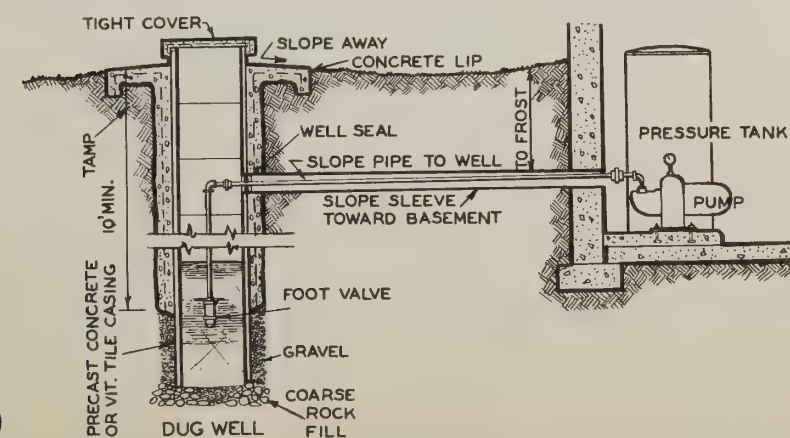
WATER SUPPLY. Connect to a municipal water line if possible. If your supply is from a well or spring, be sure you have a dependable source and enough capacity to meet your needs. Allow for probable use of 50 gallons of water a day for each member of the household.

PUMP CAPACITY. A capacity of at least 350 gallons per hour is needed to meet the requirements in the single-family home. A pressure tank of 40 gallons or more will help meet rush demands, assure a small reserve, and reduce the frequency of pump operation. For fire protection, however, these capacities are of only limited value.



PUMP HOUSE. For installation of pump directly over the well, or where conditions are not suitable for locating the pump in the basement or in a below-ground pit. The pump must be directly over the supply for deep-well installations with a piston, helical rotor, turbine, or centrifugal pump.

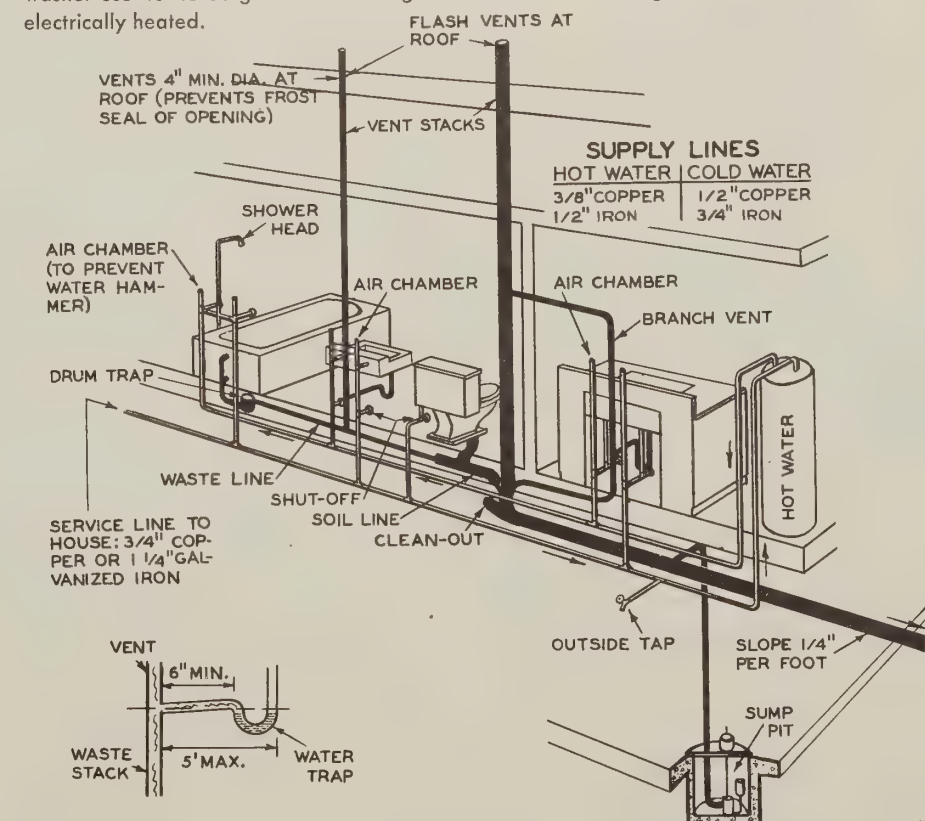
OFFSET INSTALLATIONS. For pumping from shallow supplies requiring not more than about 20 feet vertical lift and from deep wells with jet-type pumps.



PLUMBING. This diagram shows the principal parts of the house system. Your installation should conform to the code requirements of the locality. If you live in a rural area, follow the code of the nearest city. Use first-quality fixtures. A sump pump may be necessary in level-land locations to handle basement drainage. Provide two or more sill cocks for hose connections outside the house. Install stop and waste valve where water lines enter the house. Extend soil pipe 5 feet beyond the house wall, and all the way to septic tank or sewer line where tree roots might reach the line.

Cold water is not usually softened, but it may be. Attach water softener in supply line to water heater to treat hot water only.

Water heater should preferably be an automatic type, with corrosion-resistant tank. Minimum household size should be 30-gallon; with automatic clothes washer use 40- to 50-gallon size with gas or oil heater and 80-gallon size if electrically heated.



Professional skill is necessary to handle the plumbing layout and installation. The work should usually be done by a licensed plumber, as required by code in most towns and cities. In any case, plumbing should not be undertaken except with adequate tools, complete instructions, and competent workmen.

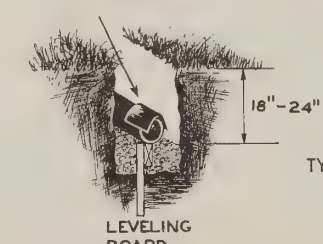
SEWAGE DISPOSAL. If your house is located beyond the municipal sewer lines, a septic tank system with subsurface disposal tile is recommended, and is required in many localities. The system consists of the following elements or parts:

Sewer line. Disposal line from house to septic tank; laid on slope of 1/4 inch or more per foot; and constructed of 4-inch bell-end cast iron, concrete, vitrified clay, or synthetic pipe, with joints sealed. Keep lines 10 feet or more from a water line.

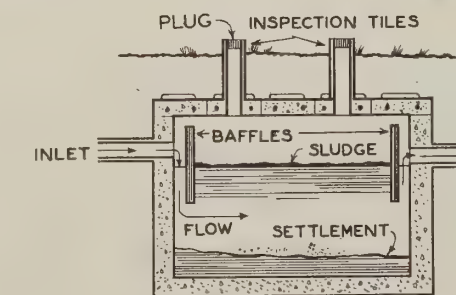
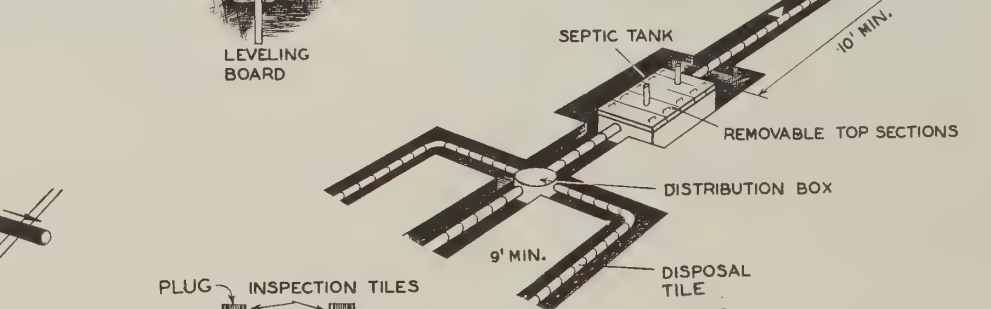
Septic tank, minimum of 500 gallons net capacity in chamber; either rectangular or round; cast-in-place or prefabricated concrete, vitreous tile, or coated steel. Conform to state and local health regulations.

Subsurface disposal. Disposal line consists of about 200 feet of 4-inch, square end, farm drain tile laid in 2 or 3 parallel lines at a slope of 1 foot per 100 feet. Unless the soil is fairly light and porous, lay tiles on gravel fill and place one foot of gravel over them in trench.

COVER THE TILE JOINTS WITH TAR PAPER TO PREVENT CLOGGING



TYPICAL SEPTIC TANK SYSTEM LAYOUT



SINGLE-CHAMBER TANK

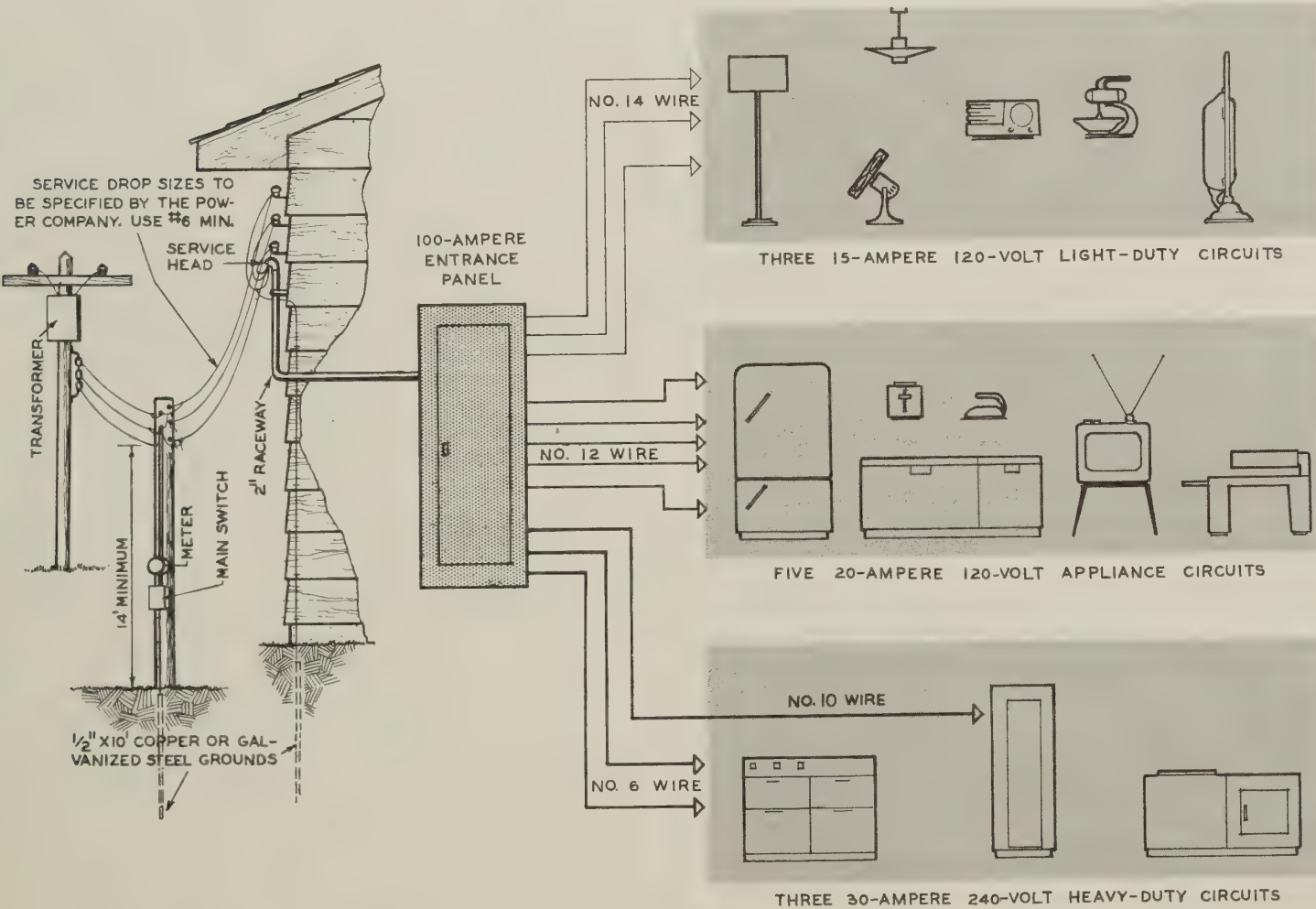
Obtain septic tank plans and list of requirements from your state or county health department or the state college of agriculture. Under some special conditions a grease trap, a double-chambered tank, or a siphon discharge may be required.

LIGHTING AND WIRING

In planning for electric service make allowance for greater use of electricity in the future. Consult power company, electrical contractor, trade association, or extension agent before deciding on the wiring plan. Require that the wiring be done according to the National Electric Code. Observe power company rules and local codes, if any apply.

Adequate wiring requires both 120-volt branch circuits for ordinary lights and appliances and 240-volt circuits for water heaters, ranges, and laundry driers. Provide enough circuits so that the usual 15-ampere branch circuits in work areas are limited to 6 outlets each. Place duplex convenience outlets at intervals of not more than 12 feet. More are needed in kitchen and workroom. Locate outlets so that it is not necessary to cross doorways with appliance cords. Minimum wire size is 14-gage; 12-gage is preferable. Extra heavy wiring and protection devices are necessary for range, water heater, and drier.

You may choose conduit or metallic or nonmetallic sheathed cable wiring. The nonmetallic is low priced and adequate and is recommended for most single-family homes.



The pictorial diagram indicates the electric wiring recommended for adequate home use of light and power. Three-wire service is recommended with capacity for 100 amperes.

Light-duty circuits using No. 14 wire may be provided for lights, fans, radio, and other small, motor-driven appliances. Three branch circuits are shown; however, they may be left out altogether and more 20-ampere, No. 12 wire branches installed.

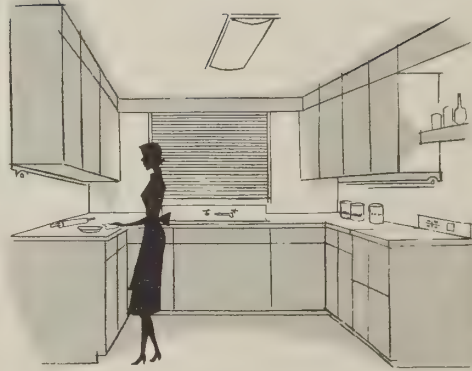
For the principal appliances such as iron, toaster, freezer, refrigerator, television, and washer, use the 20-ampere circuits. The heavy-duty appliances require 240-volt service with No. 6 wires or as required by the manufacturer, preferably with individual branch circuits to each appliance.

Installation for lighting should provide for general illumination throughout a room by means of ceiling and wall fixtures and the upward lighting from portable lamps. Specific area lighting is also required for such activities as reading, sewing, cooking, study, and shopwork.

Thus the wiring plan should provide ceiling lights in all rooms except bathroom, and in other spaces such as hallways, attic, basement, garage, and porches. Additional lighting should be provided by floor and table lamps or other equipment planned for special effects. Control installed light fixtures with wall switches placed near the principal entrance to each room or other area. Use 3-way switch sets where needed for convenience.

Your electric planning problem will be to determine the kind, style, and quality of portable lamps and lighting fixtures you want for your home, and to insist upon adequate capacity for the appliances you are likely to have. The electric power supplier or the Adequate Wiring Bureau in your community will help plan your wiring layout without charge.

Be extra liberal in deciding on the number of convenience outlets. The floor plans in this book show basic wiring — the switches, ceiling lights, and principal wall outlets. You may want to add to this, with individual circuits for dryer, air conditioner, water heater, or range. And you may decide to increase the number of convenience outlets for portable lamps and appliances.



OUTDOOR PLANNING AND PLANTING

Planning must be carried well beyond the house walls in order to provide for the home and family activities that are carried on out of doors. And you will gain the most satisfaction and convenience if you choose and arrange the house plan so that it becomes a unit with the surroundings.

Thus in house planning you take account of the slope of the land, the view in different directions, and the setting that derives the most value from sunshine in winter and cooling winds in summer. Out of doors, your problem is to add beauty and utility by means of lawns, service drive, play areas, and other landscape features.

Plants are the natural materials for making outdoor improvements. The many plant types such as trees, shrubs, vines, and grass can often be supplemented with fences, walls, or other structures to obtain the desired effect.

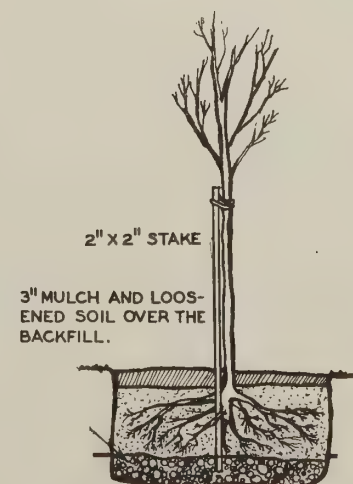
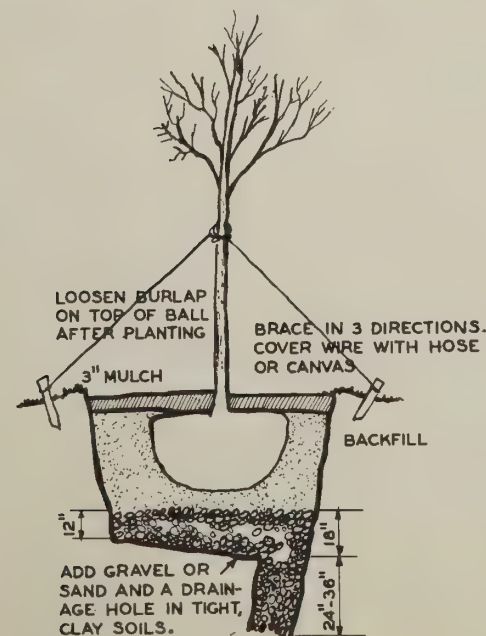
Combine your own and family preferences with the best available advice and counsel. After deciding on the general plan and the kind of planting, ask a nurseryman or landscape service to help select the plant materials best suited to your location, the soil type, and climate.

The drawings show the principal plant types that are used, alone or in combinations, to serve the particular purpose of providing background, screening, shade, protection, or outline of areas. Allow for changes that occur as the plants grow, and anticipate the effects of seasonal changes.

Landscaping ought to be the final touch that brings out the very best points of the home and its surroundings. In town or city it may be necessary to conform to code restrictions and to the confines of a small lot. But the house in a suburban, village, rural, or farm location can often be planned, placed, and planted without regard to space limitations. Full advantage can be taken of the setting to obtain attractive views, conform to the topography, and make the most effective use of plantings. The landscape plan should serve to accent attractive views both toward and away from the house.

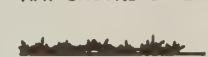


Prune branches to develop a strong leader. Remove branches forming narrow angle with the leader. Trees having trunk diameter greater than two inches should have roots surrounded by ball of earth and burlapped for transplanting.



Keep the roots of bare-rooted stock covered with dampened burlap and out of direct sunlight when transplanting. Prune damaged or dead roots. Plant as soon as possible after digging. Set tree two inches deeper than it was originally.

MAT-GROUND COVER



SPREADING



HIGH SCREEN



CLIPPED



UNCLIPPED



CUSHION

SPACE OR CIRCULATION DEFINERS



HORIZONTAL BRANCHING



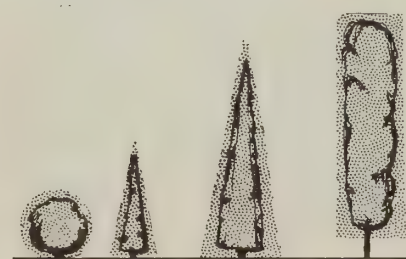
MOUND WEEPING



MULTIPLE STEM



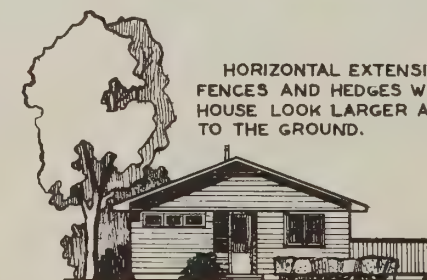
LEGGINESS MAY BE SCREENED IF DESIRED



BALL CONICAL PYRAMIDAL COLUMNAR



MULTIPLE TRUNK WHITE BARK FOR SILHOUETTE



HORIZONTAL EXTENSIONS SUCH AS FENCES AND HEDGES WILL MAKE THE HOUSE LOOK LARGER AND BLEND TO THE GROUND.



LARGE TREES MAKE A HOUSE LOOK SMALLER

AVOID PLANTINGS CLOSE TO LOW-OPENING WINDOWS



MULTIPLE-TRUNK TRACERY WILL BREAK LONG ROOF LINES

ACCENT THE GUEST ENTRANCE

how to use

FLEXIPLAN

71204

Using scaled drawings on divided sheets as a method of planning your house is probably a new experience for you. But it may be a highly valuable one in deciding on plans for your home.

Notice that the divided sheets are made so that any one of the plan sections on the left side can be put together with any one of the plan sections on the right side to form a complete floor plan. Since there are 24 sections on each side, you can choose from a total of 576 possible house-plan combinations. In addition, you can reverse the whole plan or either half sheet independently of the other and still have a workable floor plan. Still more variations are possible, because most of the combinations offer alternatives in the choice of basement, garage, or porch. Among so many arrangements you are almost sure to find one that you like.

So begin your selection of a plan with a study of both the left-hand sections and the right-hand sections. Some of the left-hand sheets form complete small houses, but generally you will want a combination of the two sheets that gives you a suitable daytime living area with the bedroom section you want.

When you have decided on a combination, it may be advisable to study it more thoroughly by placing a sheet of semitransparent paper over it and tracing the outlines, openings, dimensions, etc. Then use the tracing for a study of rearrangement. Invert the plan, turn it over sideways, or invert each half separately until you have the arrangement that meets with your approval and fits on the site.

You can make still further adjustment in the plan you choose. Because the plans are based on modular (standard) measurements of structure, doors, windows, and materials and are designed for clear-span roof frames, the interiors can be arranged or varied as desired. The plan sheets offer other features that give you a chance to choose and adapt them to your own needs and preferences.

After you have selected a plan, use the cutouts to find out how your furniture will fit into the arrangement. You may want to change the plan slightly — by choosing a different type of window, for example, or shifting the location of a window or door — to permit a more usable or suitable arrangement. Or, if the plan just doesn't work, you may want to select another one.

The diagram illustrates a variety of furniture options for a living room, organized into several rows:

- Top Row:** CONSOLE TV, BENCH, SMALL SOFA, MEDIUM SOFA, LARGE SOFA, VIDEO COUCH, SMALL SETTEE, LARGE SETTEE.
- Second Row:** RADIO-PHONO CONSOLE, ARM CHAIR, ARM CHAIR, SLING CHAIR, OTTOMAN CHAIR, SIDE CHAIR, HAS-SOCK, ROCKER, WEBBING CHAIR, LADDER BACK, CHAIR, CHAIR, ARM CHAIR, LOUNGE CHAIR.
- Third Row:** BOOKCASE, BOOKS, BOOKS, LAMP TABLE, END TABLE, END TABLE, COFFEE TABLE, COFFEE TABLE, COFFEE TABLE, COCKTAIL TABLE.
- Bottom Section:**
 - Left Side:** CARD TABLE, GRAND PIANO.
 - Middle:** UPRIGHT PIANO, SPINET PIANO, BENCH, ST., BENCH.
 - Right Side:** SECRETARY, SECRETAIRE, F.L., F.L., F.L., F.L., FLOOR OR TABLE LAMPS, T.L., T.L., T.L., T.L., T.L., T.L., LOW BOY, HIGH BOY.

A collection of furniture icons arranged in a grid-like fashion. The top row features four rectangular tables of varying sizes, each with a label 'TABLE' inside, and two round tables, each with a label 'TABLE' inside. The bottom row features a drop-leaf table labeled 'DROP LEAF TABLE', a service table labeled 'SERVICE TABLE', two corner cupboards labeled 'CORNER CUPBOARDS', two sideboards labeled 'SIDEBOARD', a cupboard labeled 'CUPBOARD', a china cabinet labeled 'CHINA', and a row of chairs labeled 'CHAIRS'.

BUREAU DRESSING TABLE CEDAR CHEST

DOUBLE BED NIGHT STAND DOUBLE BED NIGHT STAND TWIN BED NIGHT STAND TWIN BED SINGLE BED BUNK BEDS COT

LARGE VANITY 4-DRAWER CHEST CHIFFONIER SMALL VANITY

7.0 CU. FT. FREEZER

11.5 CU. FT. FREEZER

16.0 CU. FT. FREEZER

20 CU. FT. FREEZER

9.0 CU. FT. FREEZER

TABLE

WOOD & COAL RANGE

APT. RANGE

OVEN

MILK CANS

DISH WASH - 11ER

AUTO - MATIC WASHER

AUTO - MATIC DRYER

WRINGER WASHER

SPIN TYPE

IRONER

IRONING BOARD

LAUNDRY TUBS

HOT WATER

HW

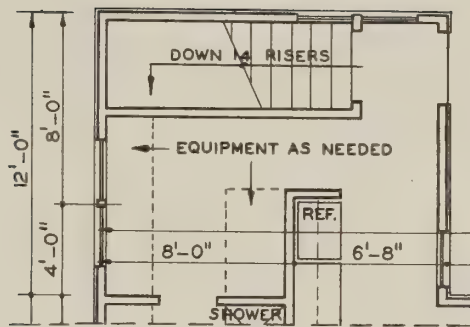
WS

WATER PUMP

SEWING MACHINE

BABY CARRIAGE

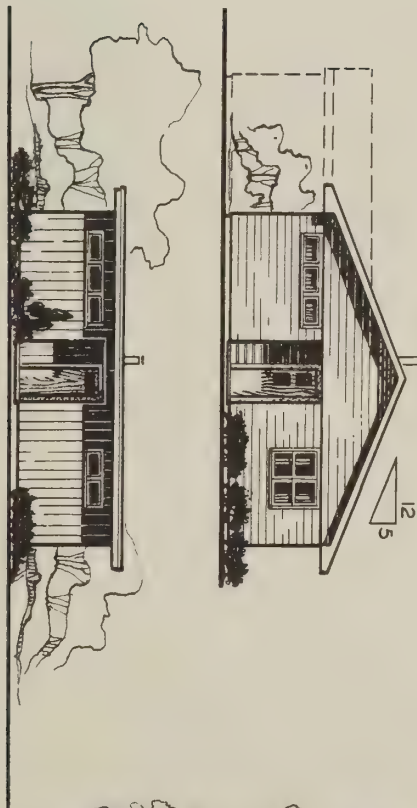
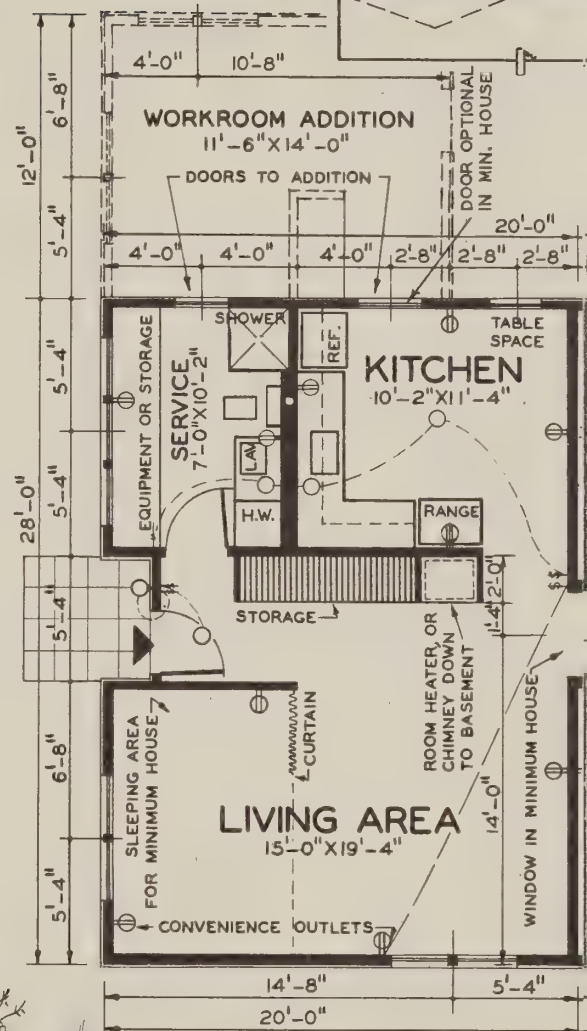
BABY CARRIAGE



ALTERNATE WORKROOM ADDITION
FOR USE IF BASEMENT IS DESIRED

MINIMUM HOUSE

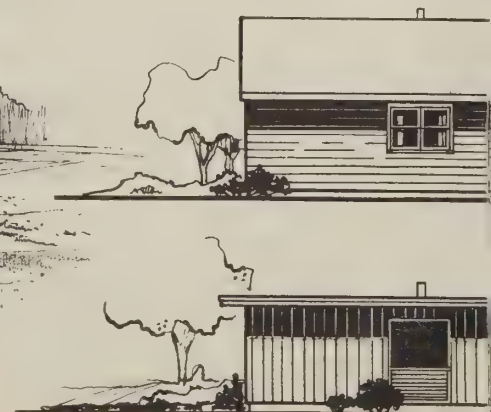
PLAN "A" (BLACK WALLS) CAN BE BUILT AS A COMPLETE MINIMUM HOUSE. AREA = 550 SQ. FT. ADD ANY BEDROOM UNIT AND/OR THE EXTRA WORK SPACE (SHOWN BY DOTTED LINES) TO EXPAND. OR, ANY COMBINATION OF SPECIAL FEATURES CAN BE INCLUDED IN THE ORIGINAL CONSTRUCTION.

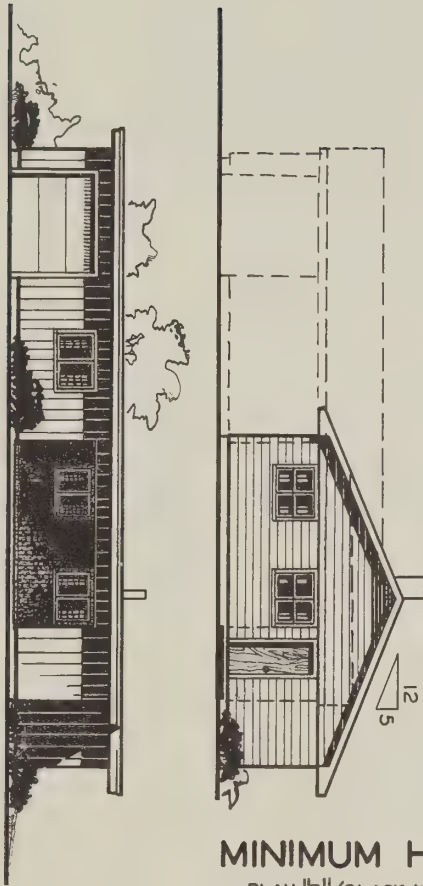


A

A CARPORT MIGHT BE
ADDED AS ILLUSTRATED

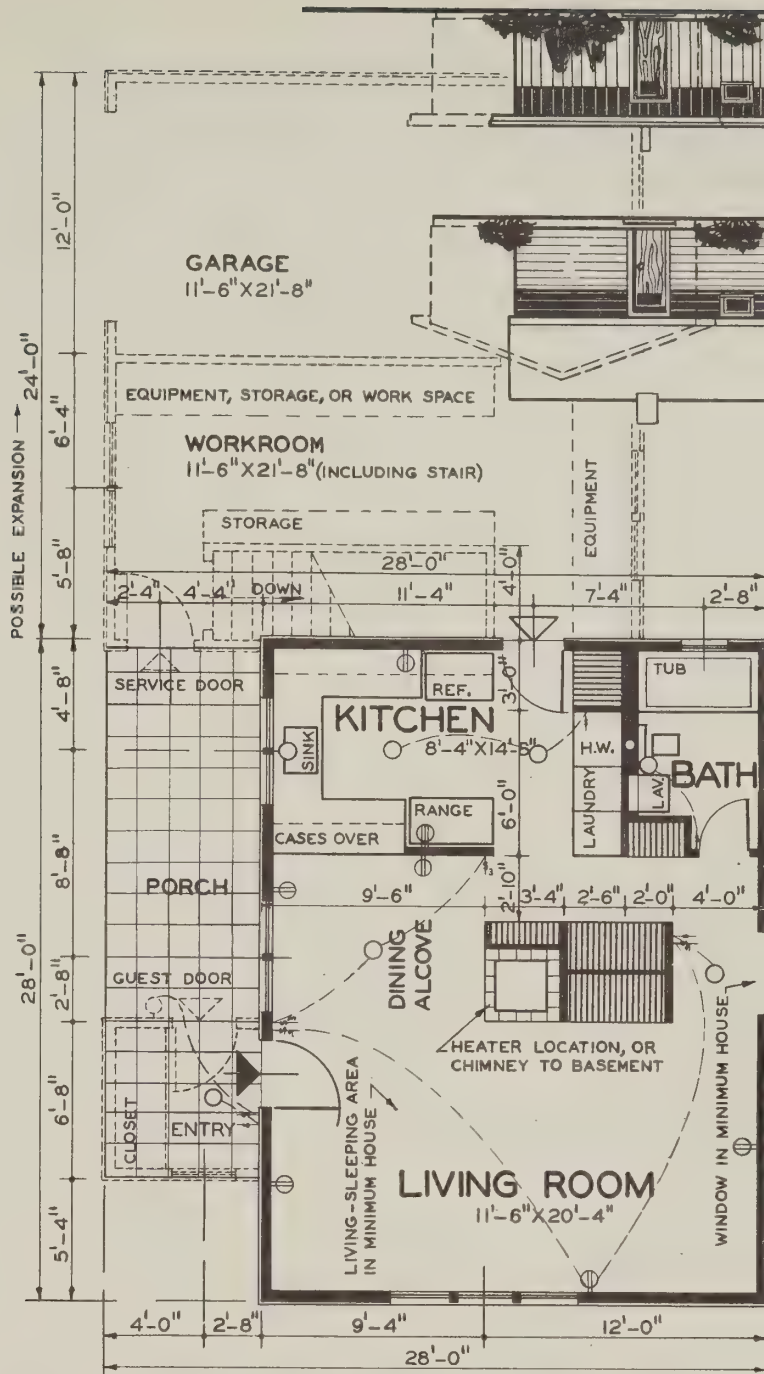
FLEXIPLAN 71204





MINIMUM HOUSE

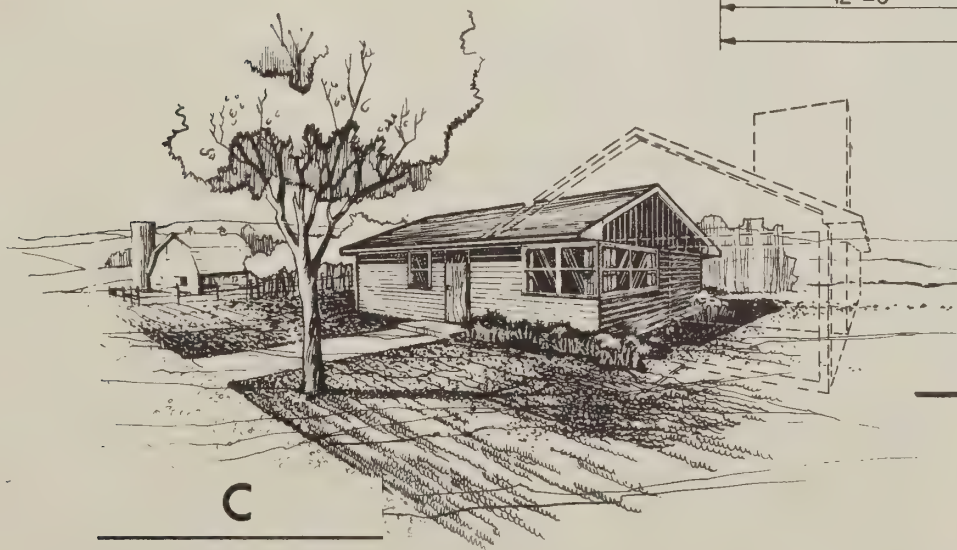
PLAN "B" (BLACK WALLS) CAN BE BUILT AS A COMPLETE MINIMUM HOUSE. AREA = 588 SQ. FT.



B

FLEXIPLAN 71204

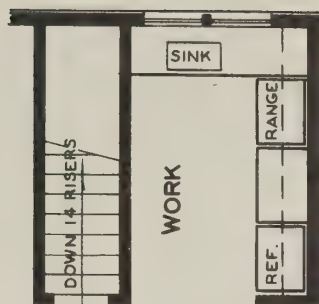






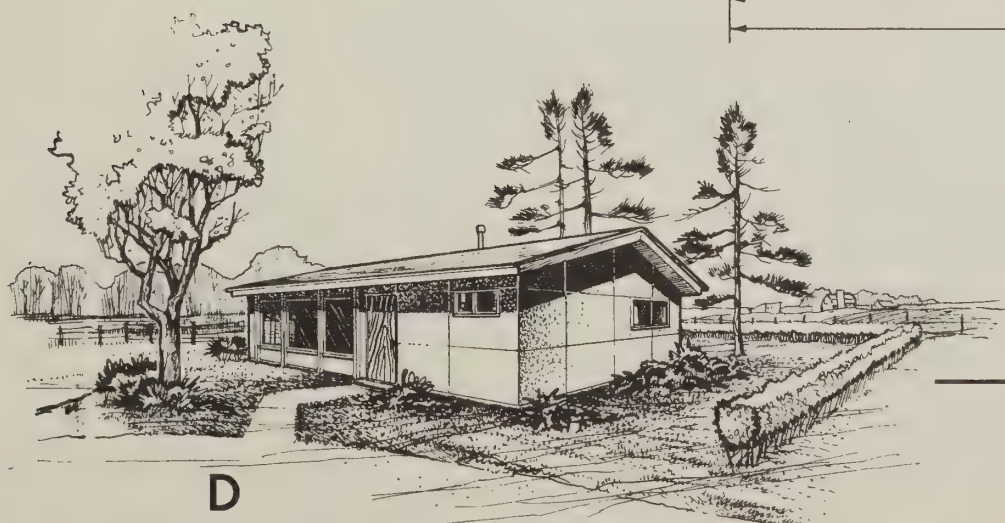
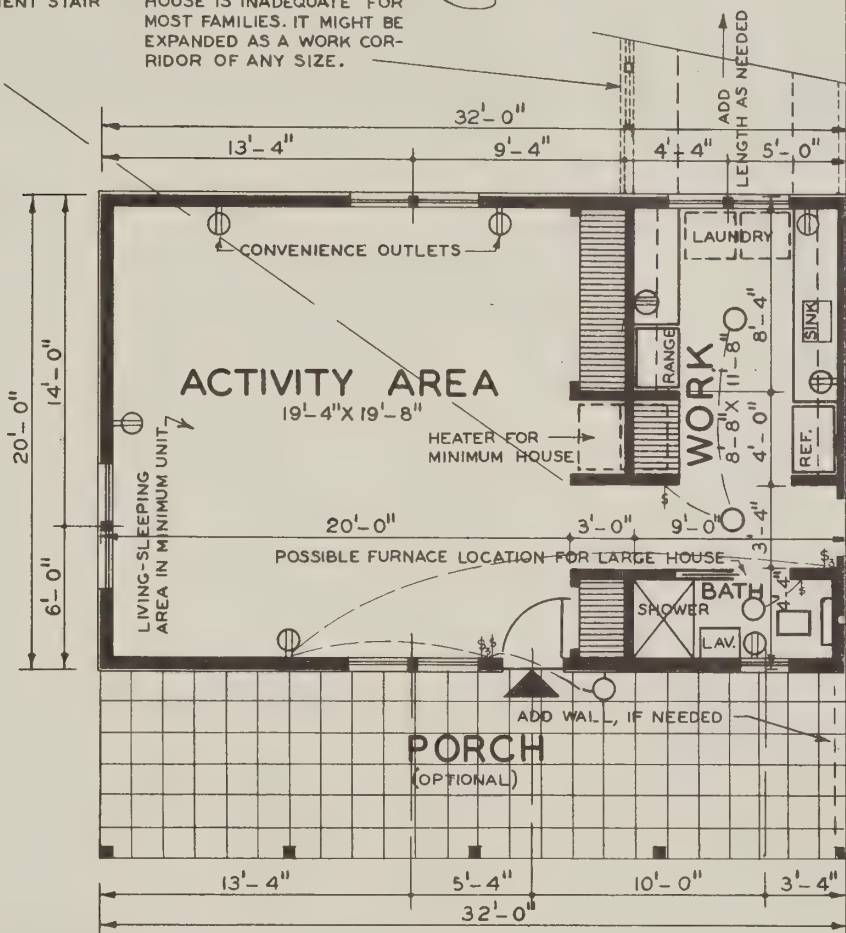
MINIMUM HOUSE

PLAN "D" CAN BE BUILT AS A COMPLETE MINIMUM HOUSE, WITH OR WITHOUT A BASEMENT. AREA= 640 SQ. FT.



ALTERNATE PLAN FOR BASEMENT STAIR

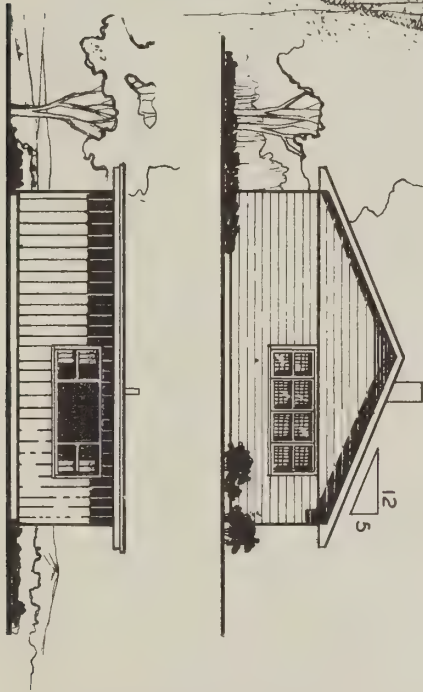
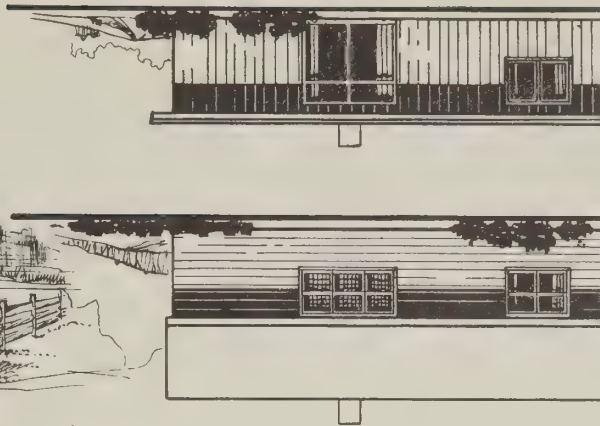
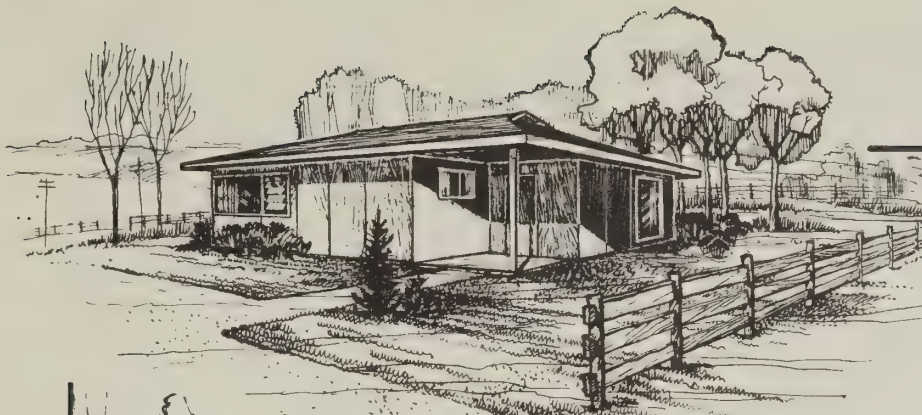
THE WORK AREA OF THIS HOUSE IS INADEQUATE FOR MOST FAMILIES. IT MIGHT BE EXPANDED AS A WORK CORRIDOR OF ANY SIZE.



D

FLEXIPLAN 71204

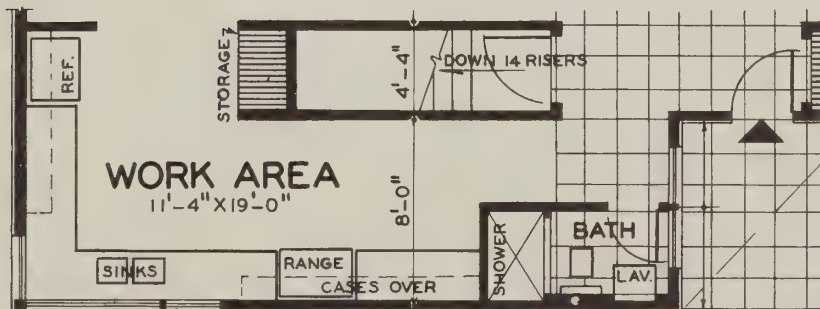
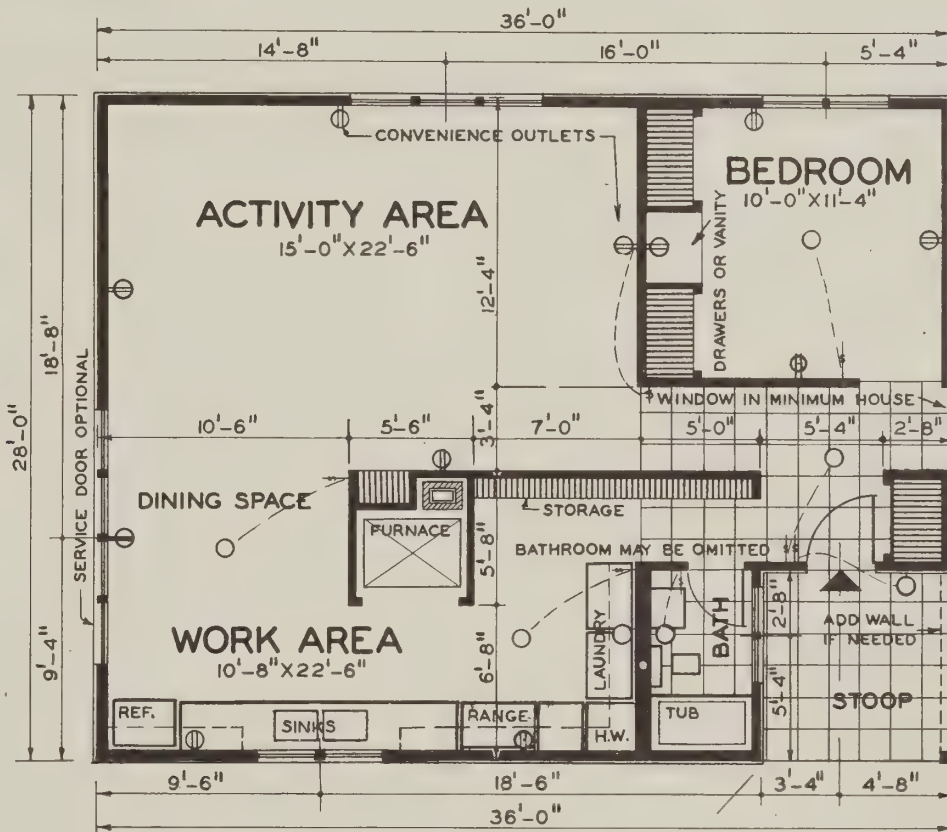




MINIMUM HOUSE

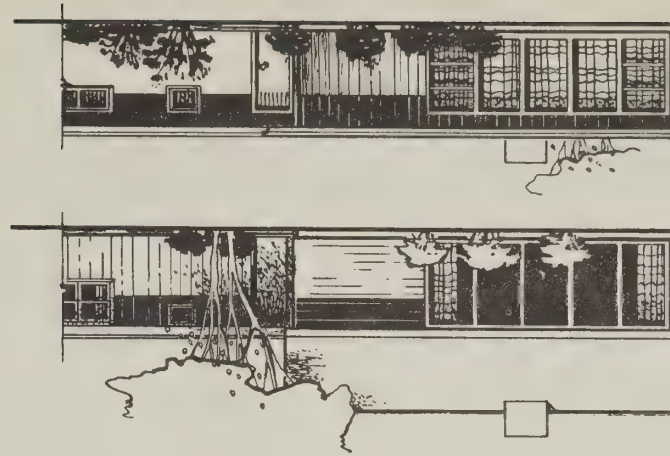
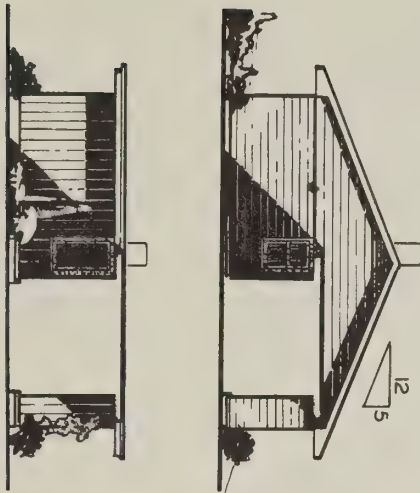
PLAN "E" CAN BE BUILT AS A COMPLETE 1-BEDROOM UNIT. ADD ANY BEDROOM UNIT TO EXPAND. AREA OF MINIMUM UNIT=944 SQ.FT.

SUBSTITUTE ALTERNATE WORK AREA BELOW FOR STAIRS DOWN.



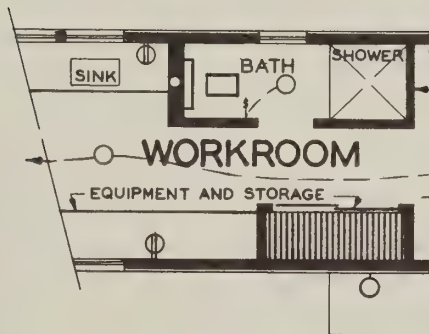
E





WORKROOM MAY BE CONNECTED TO
GARAGE OR OTHER SERVICE BUILDING

WORKROOM LENGTH DE-
PENDS ON SPACE NEEDS



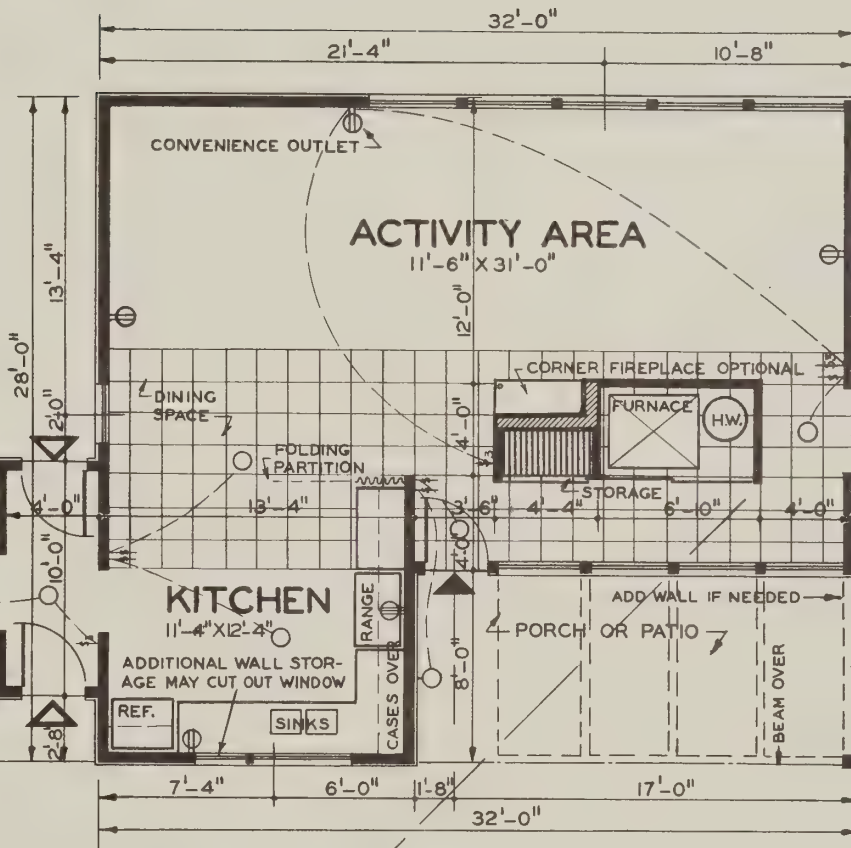
LIVING AREA (EXCLUDING
WORKROOM) = 746 SQ. FT.

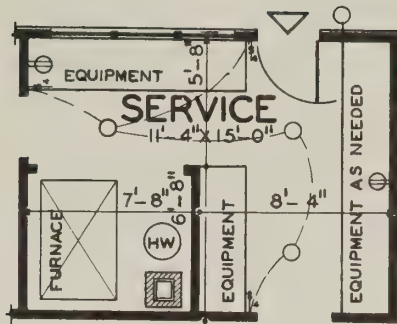
IF BASEMENT IS DESIRED
ADD STAIR TO WORKROOM, OR
LOCATE STAIR AS INDICATED



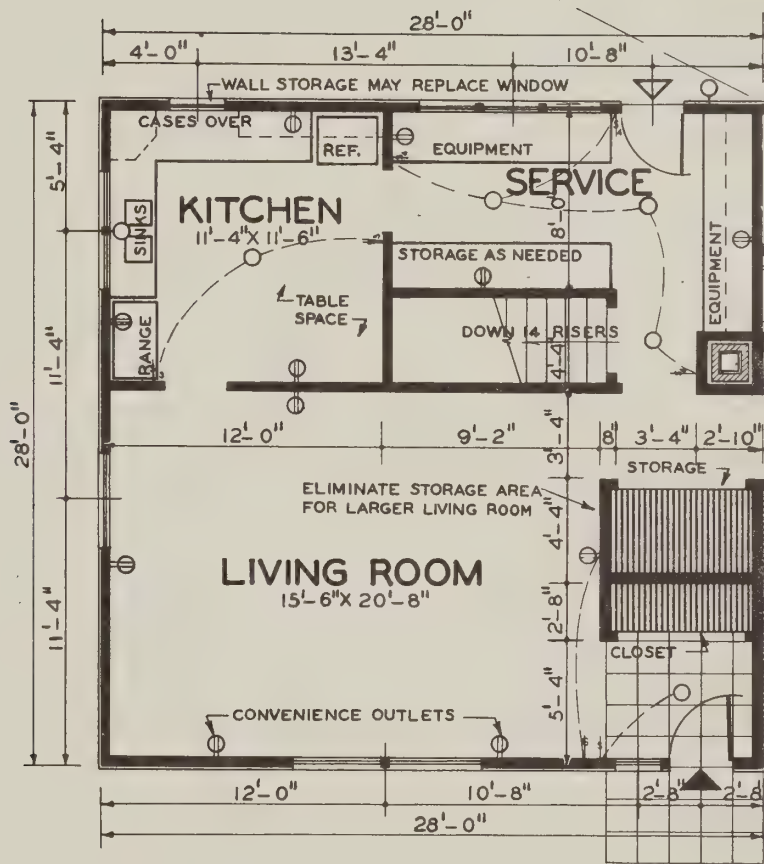
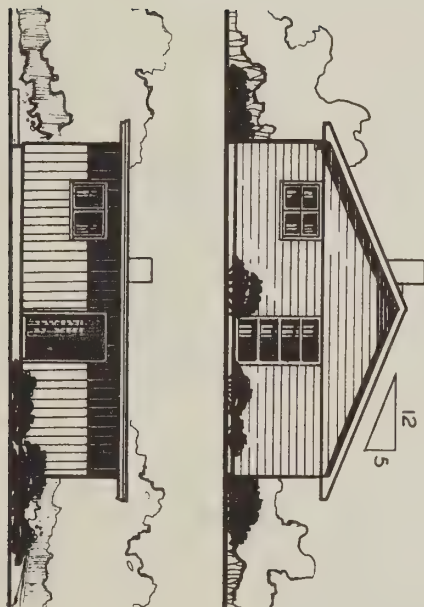
F

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ALTERNATE ARRANGEMENT
FOR BASEMENTLESS HOUSE

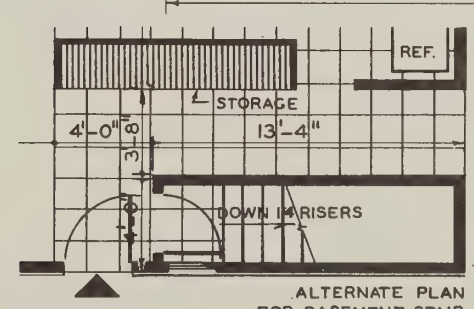
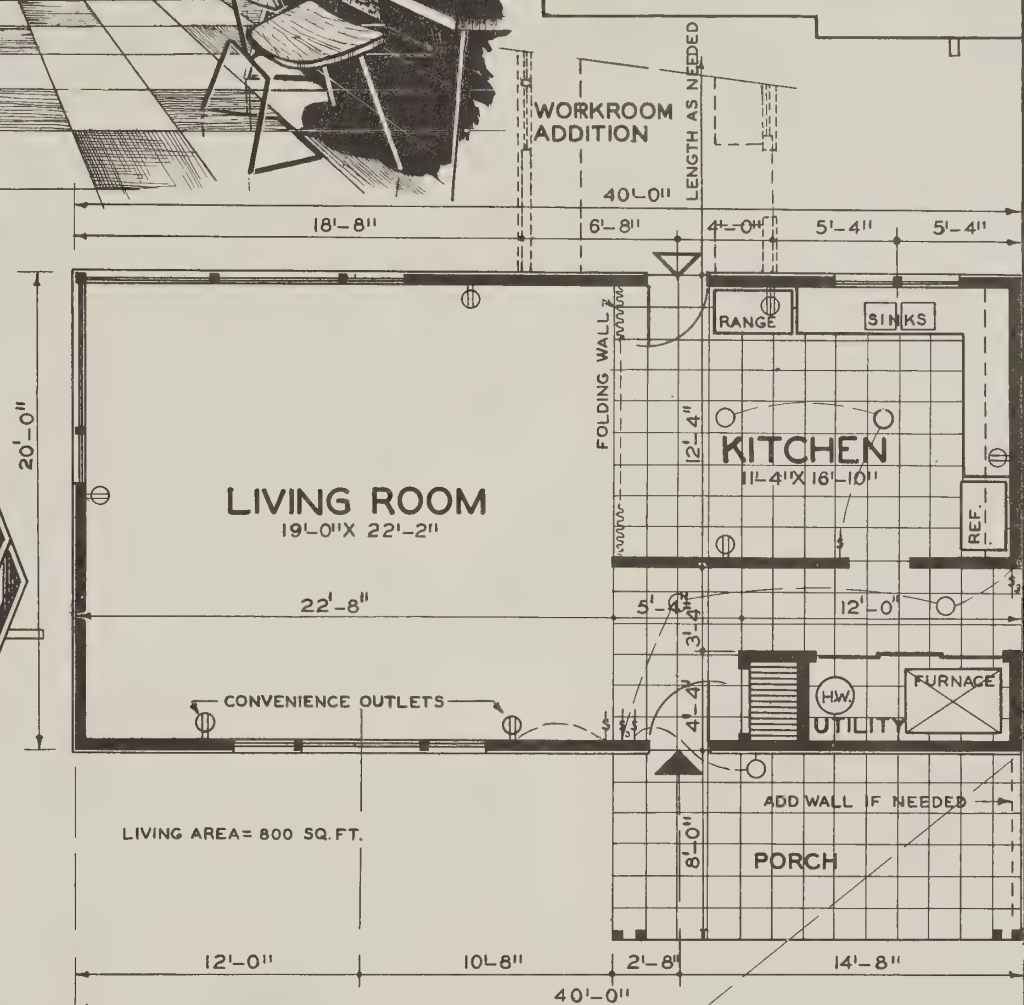
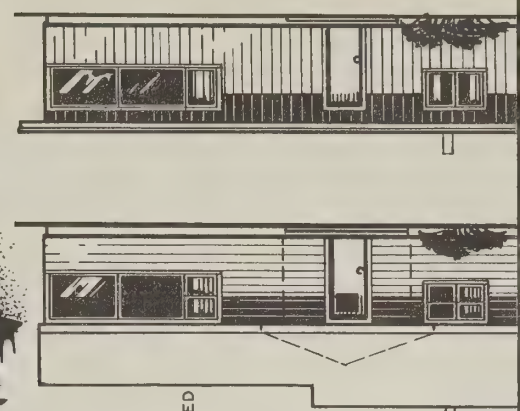
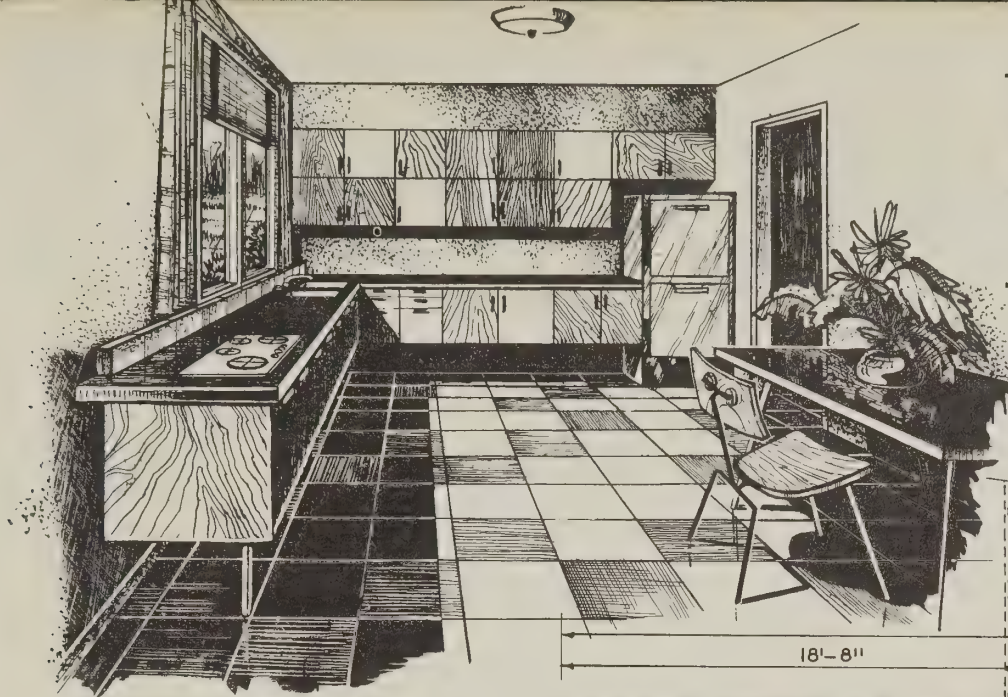


LIVING AREA = 784 SQ. FT.

G

FLEXIPLAN 71204



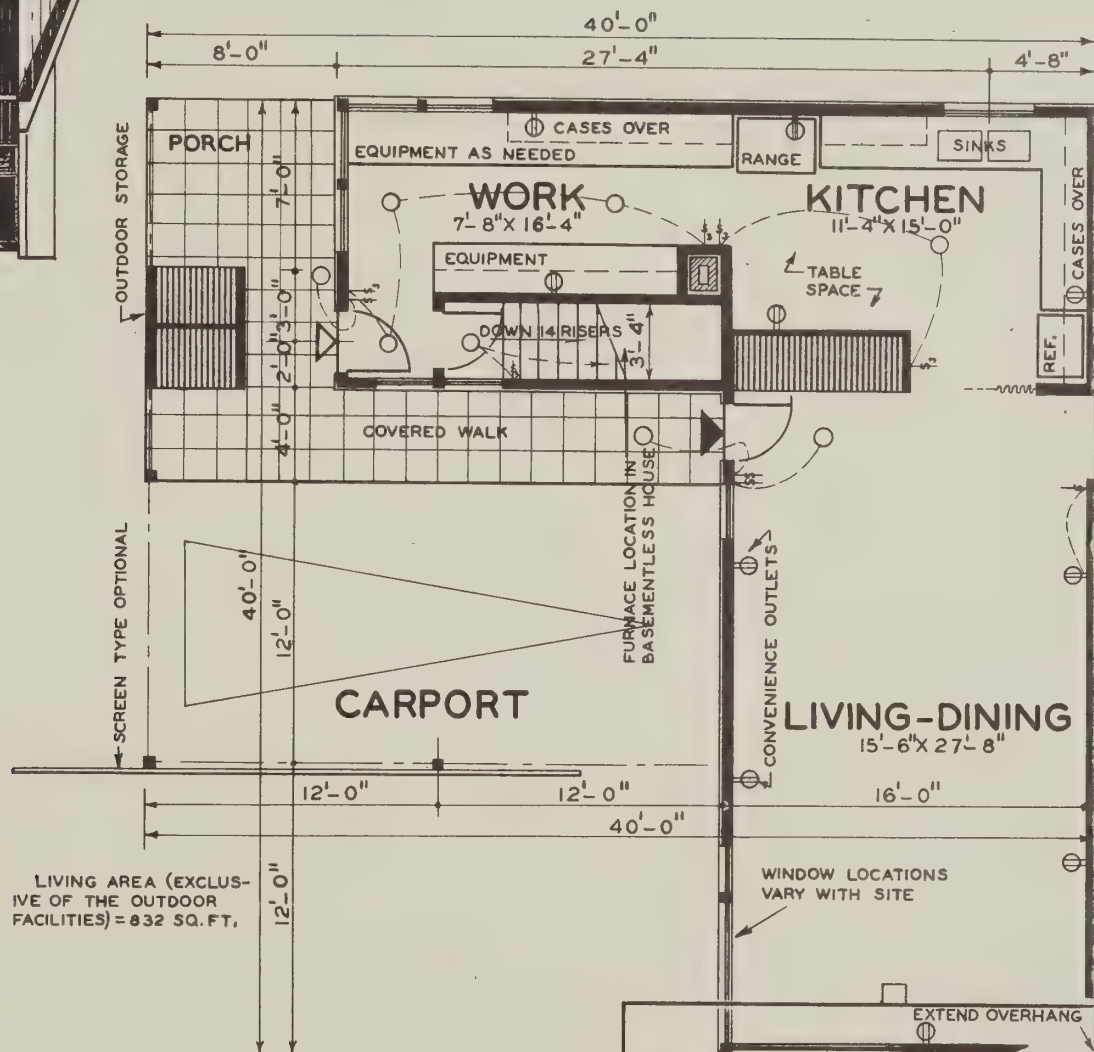
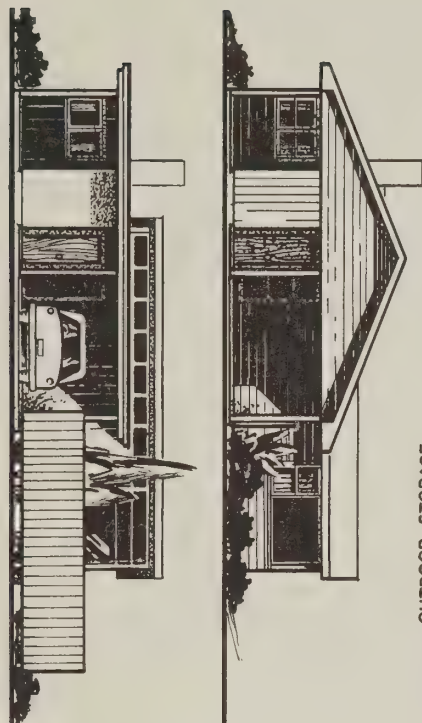


ALTERNATE PLAN
FOR BASEMENT STAIR



H

FLEXIPLAN 71204

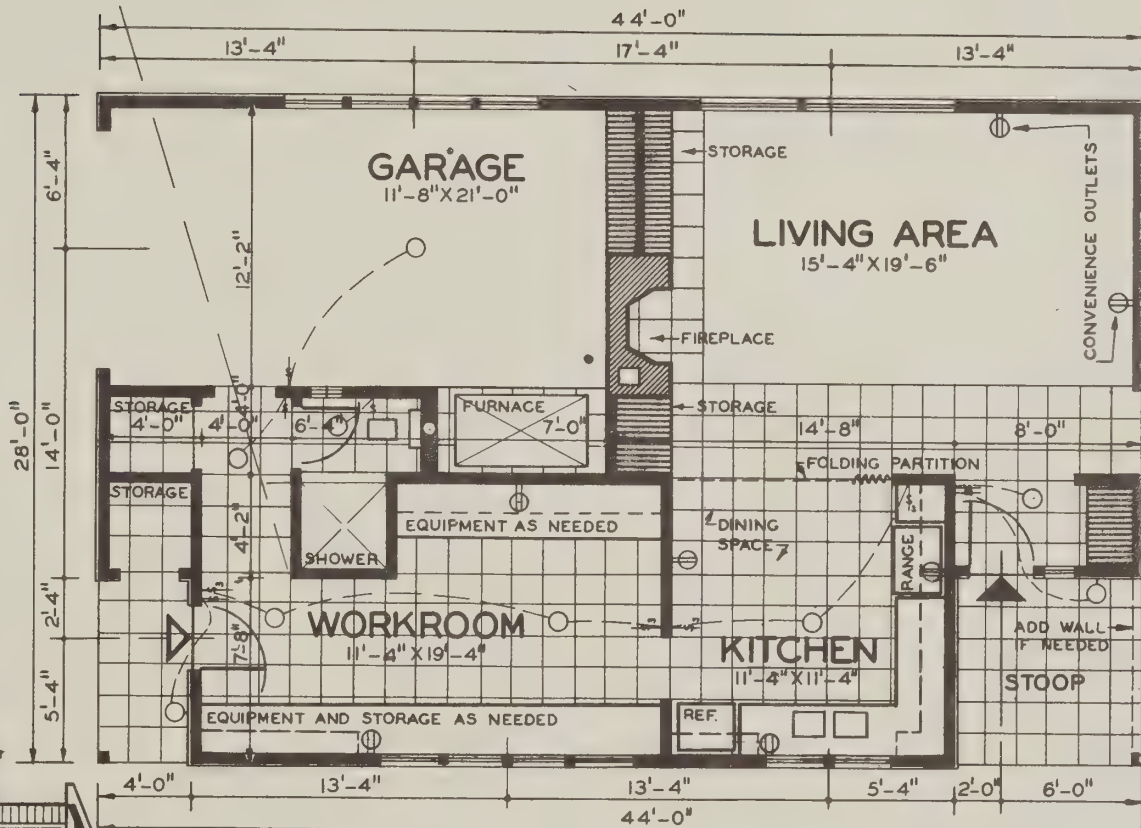


LIVING AREA (EXCLUSIVE OF THE OUTDOOR FACILITIES) = 832 SQ. FT.

J



IF BASEMENT STAIR IS
NEEDED, SUBSTITUTE THIS
SECTION AS IS INDICATED



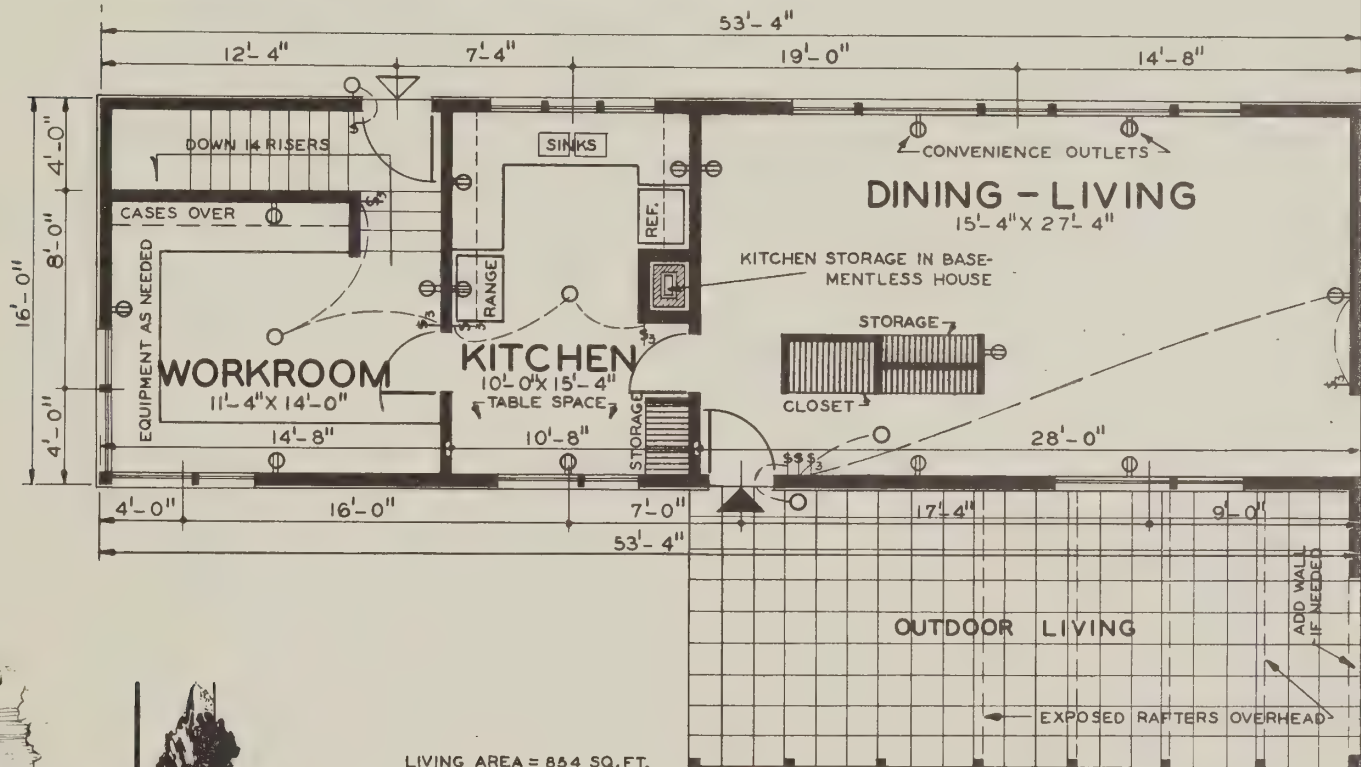
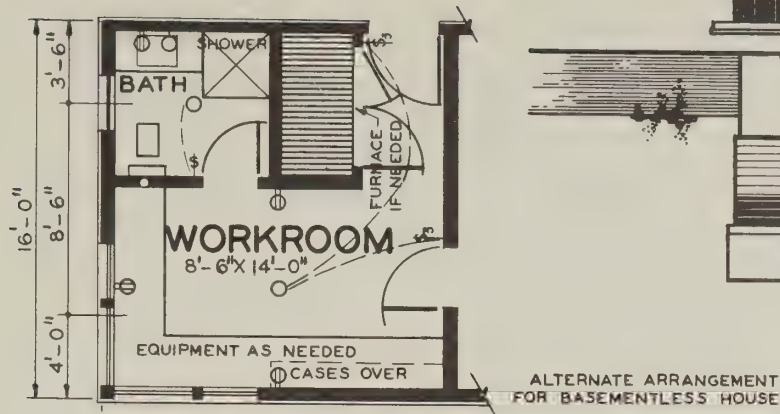
LIVING AREA (COUNTING
50 % OF GARAGE OR OPEN
PORCH AREAS)=1010 SQ. FT.

WITH SLIGHT PLAN MODIF-
ICATIONS, FACILITIES LEFT OF
THIS LINE CAN BE OMITTED

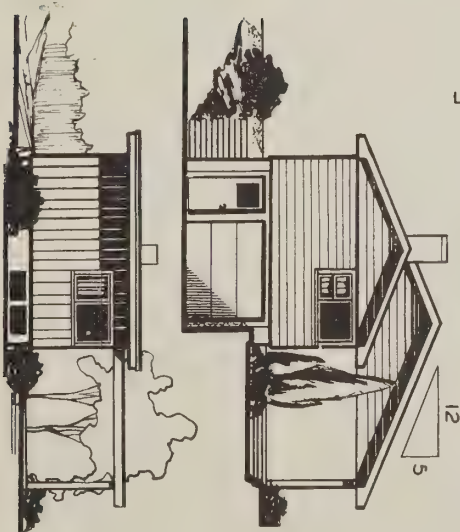


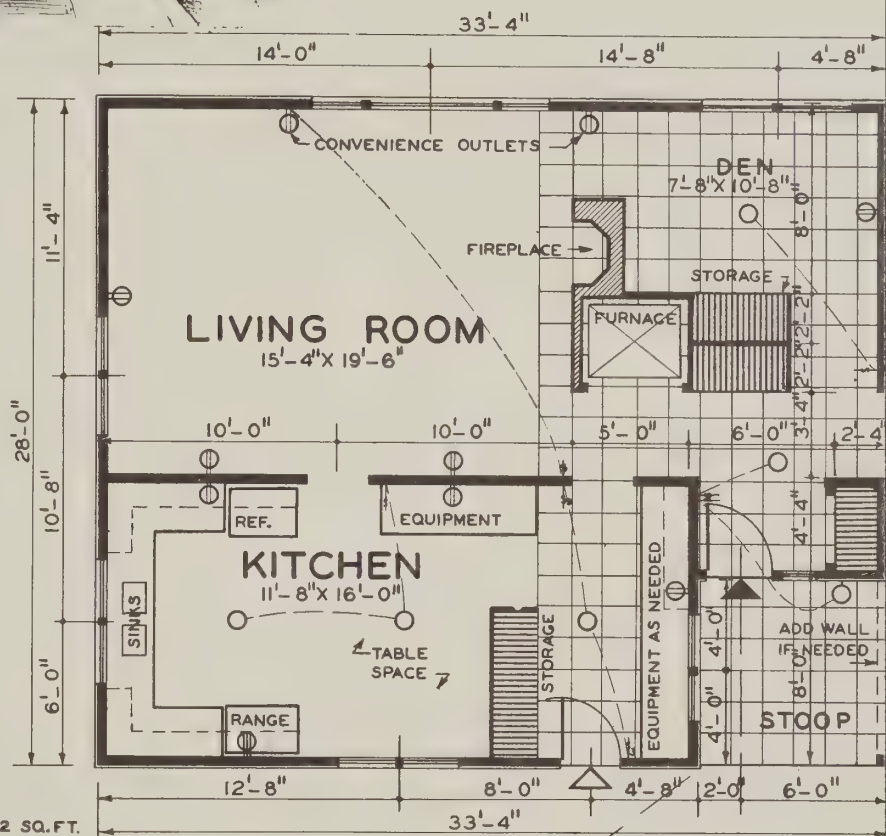
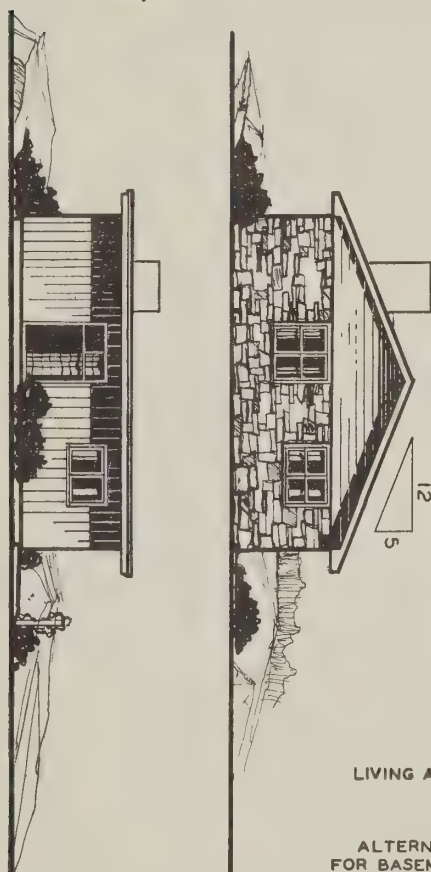
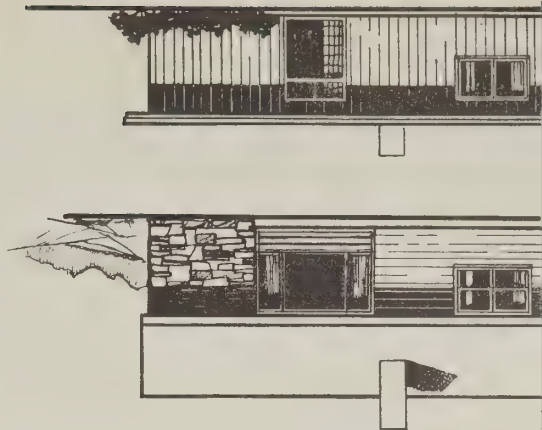
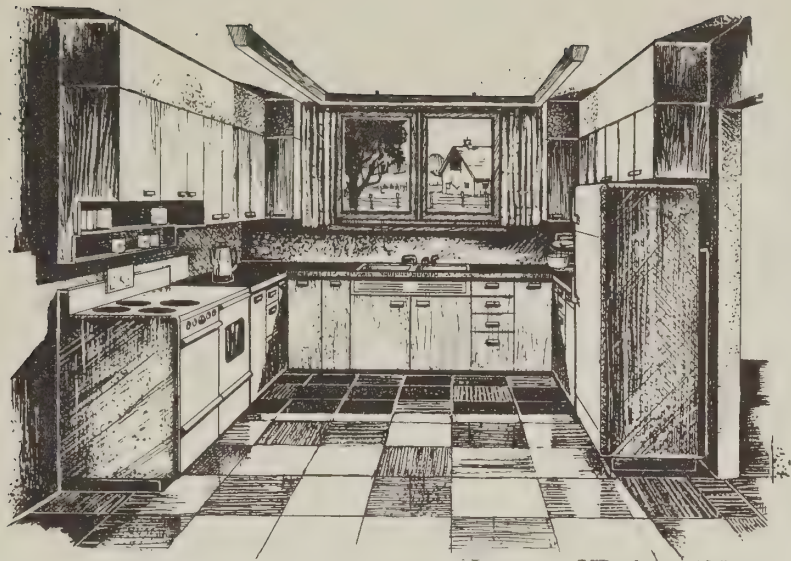
K

FLEXIPLAN 71204

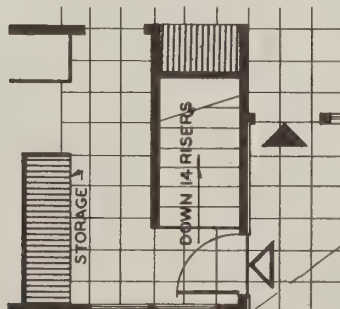


LIVING AREA = 854 SQ. FT.



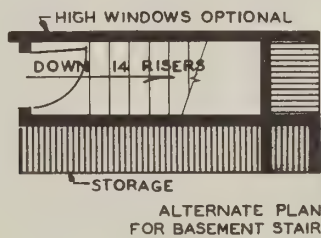


ALTERNATE DETAIL
FOR BASEMENT STAIR

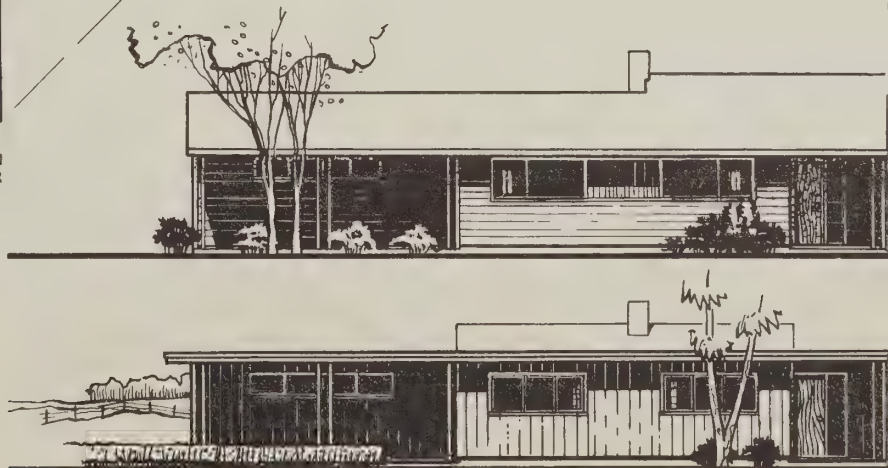


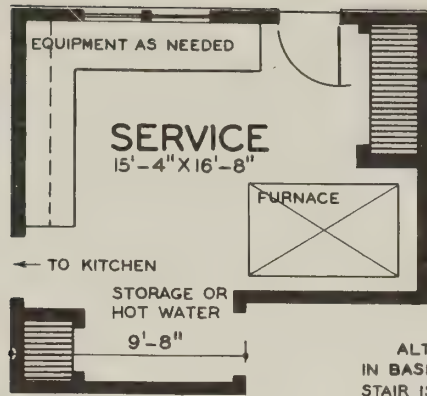
M

FLEXIPLAN 71204

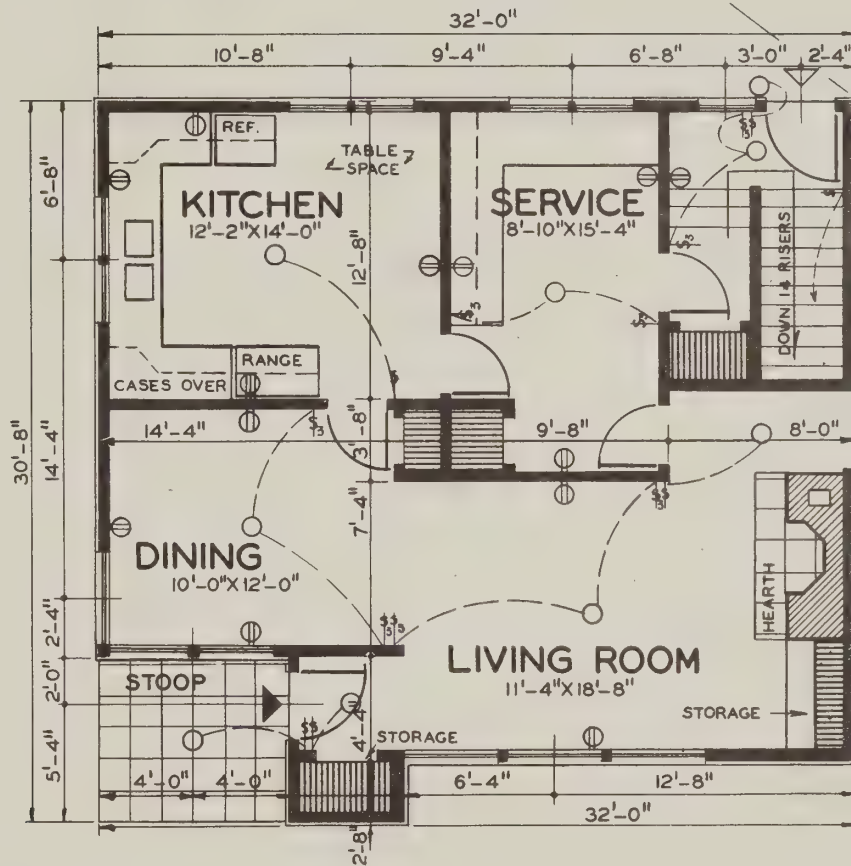


FLEXIPLAN 71204





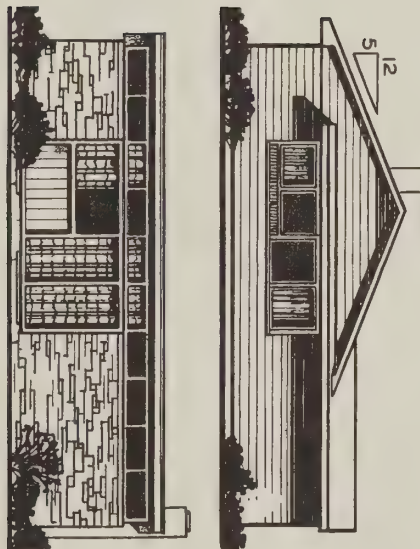
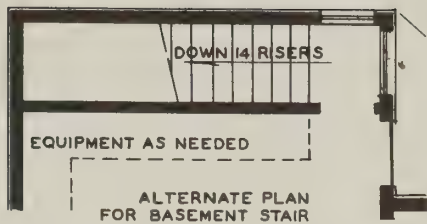
ALTERNATE SERVICE AREA
IN BASEMENTLESS HOUSE, OR IF
STAIR IS IN BEDROOM SECTION



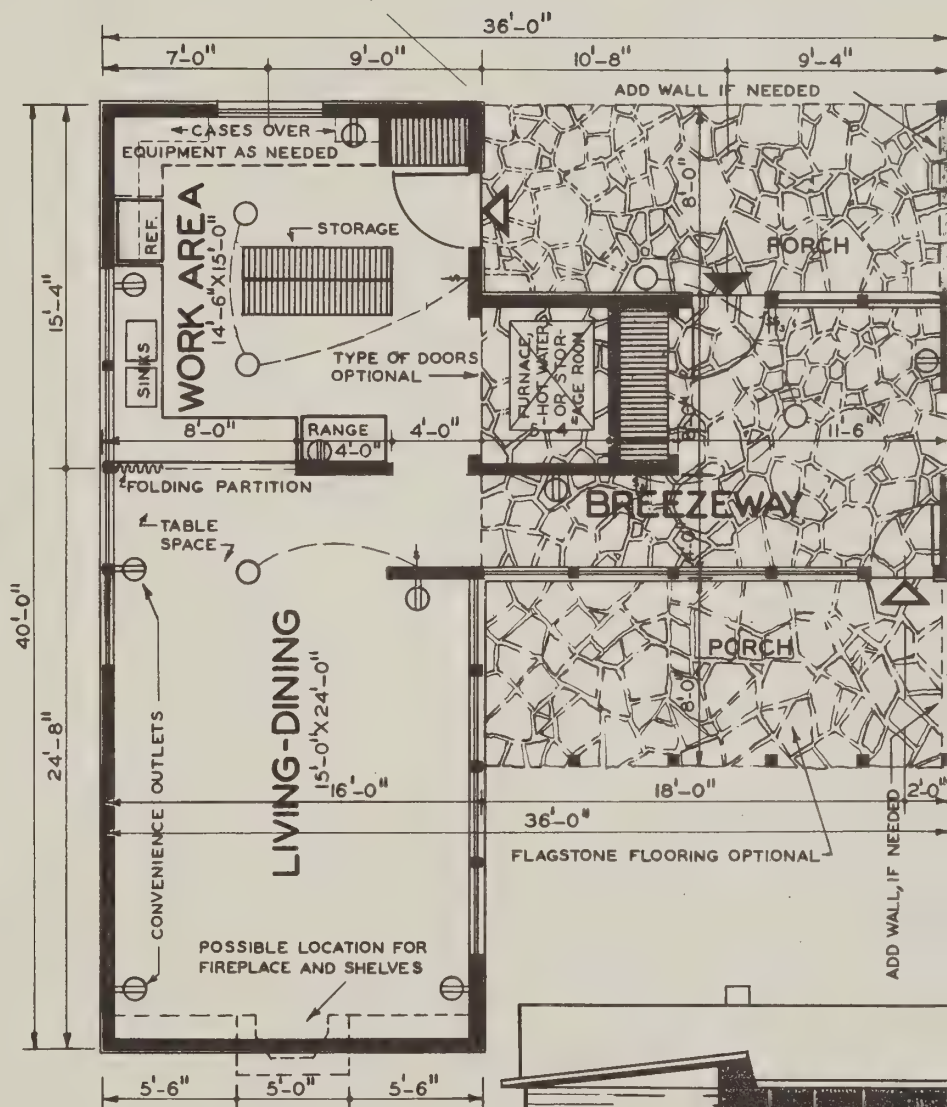
LIVING AREA = 884 SQ. FT.



P



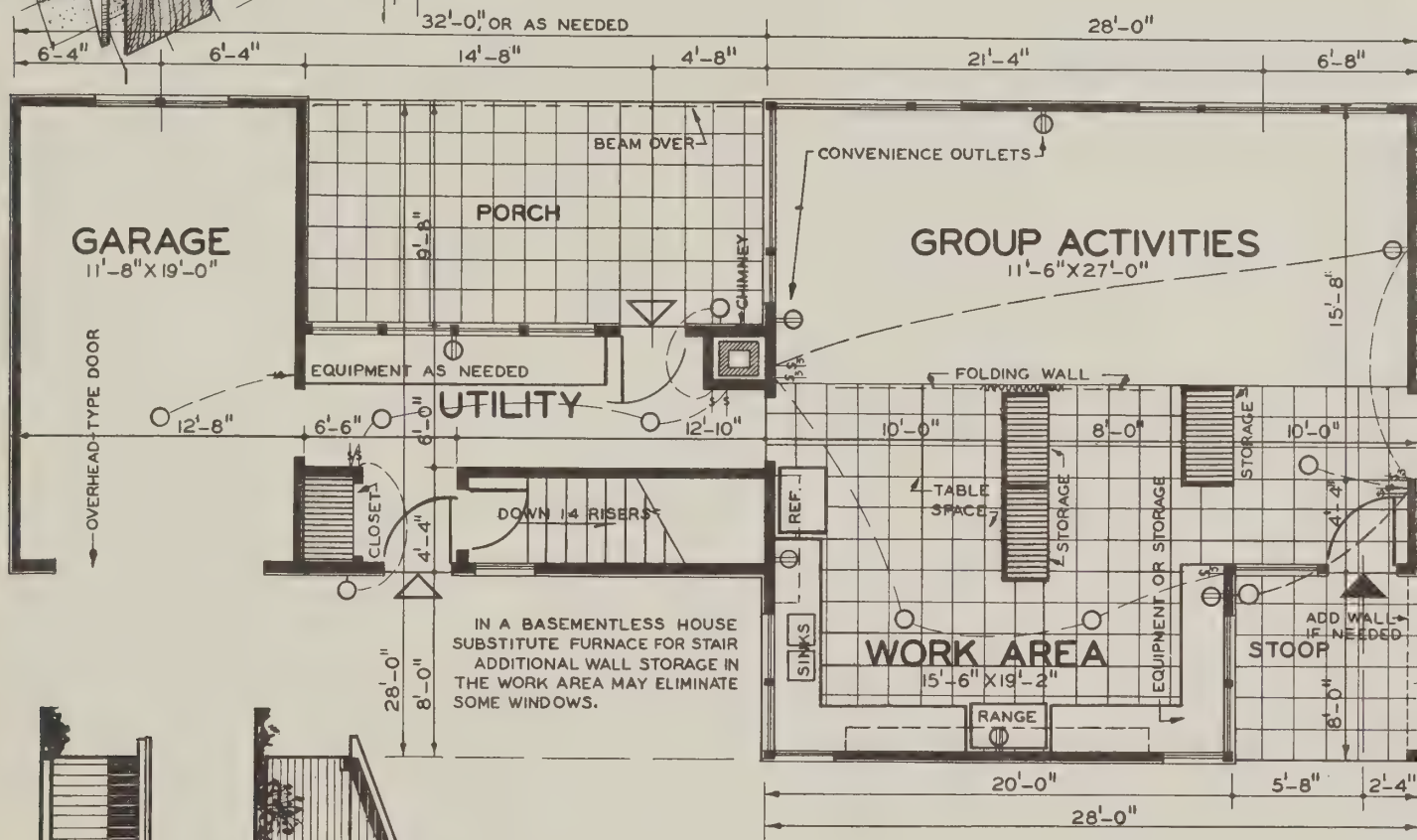
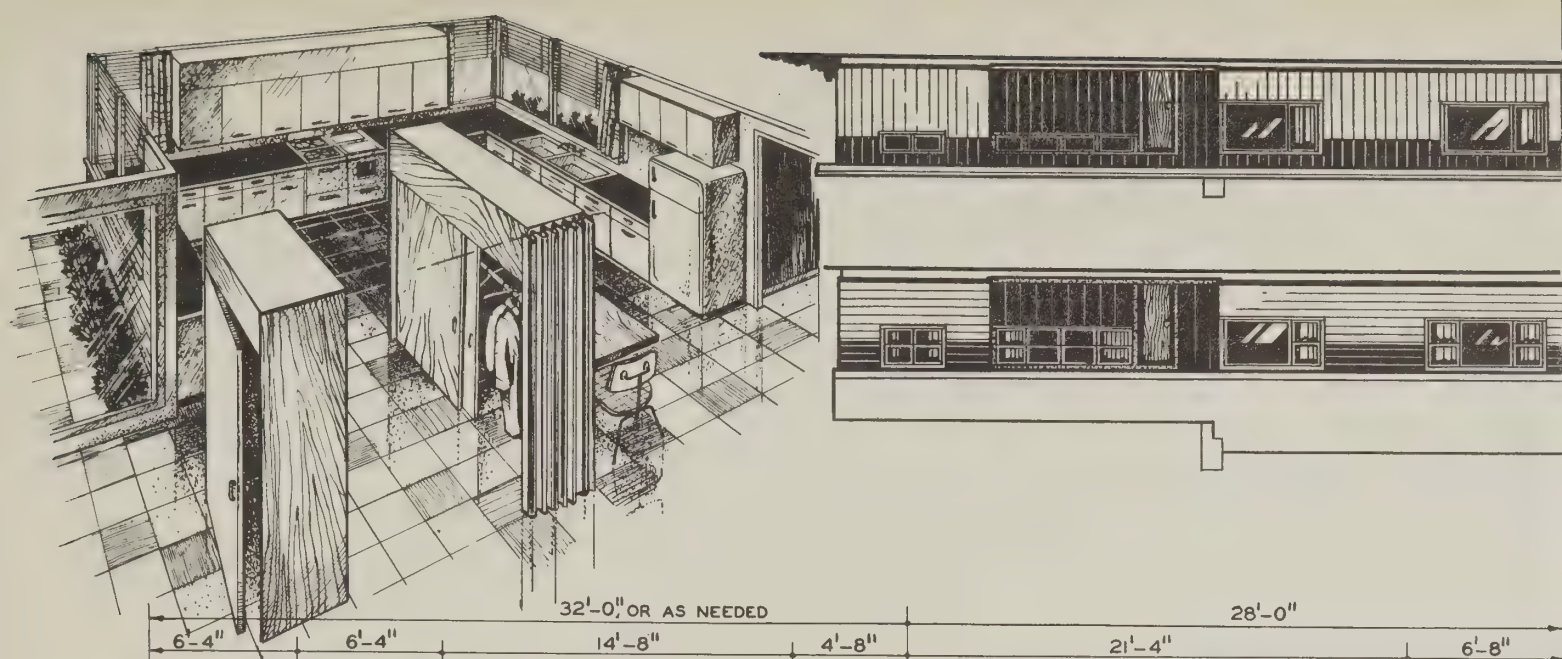
LIVING AREA (COUNTING 50 % OF PORCH AREAS) = 1040 SQ. FT.



FLEXIPLAN 71204

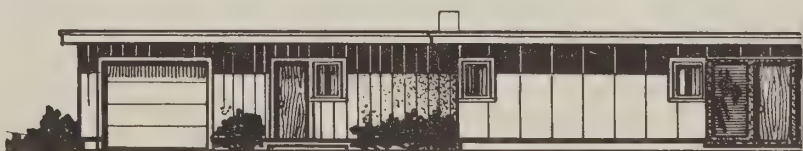
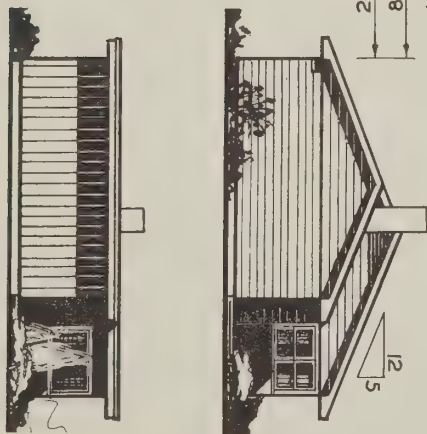
LIBRARY
UNIVERSITY OF ILLINOIS





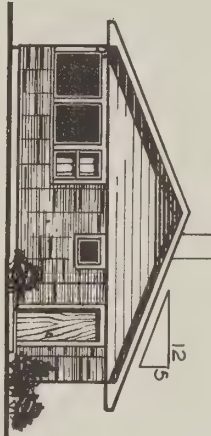
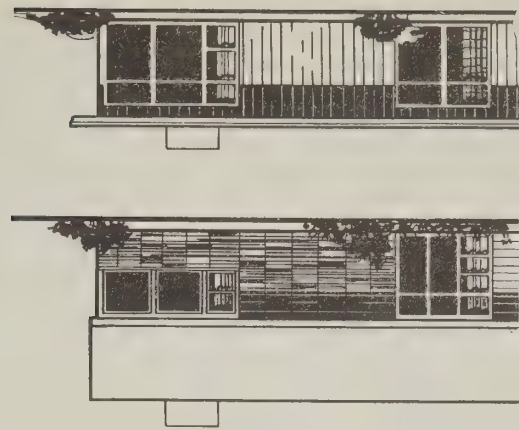
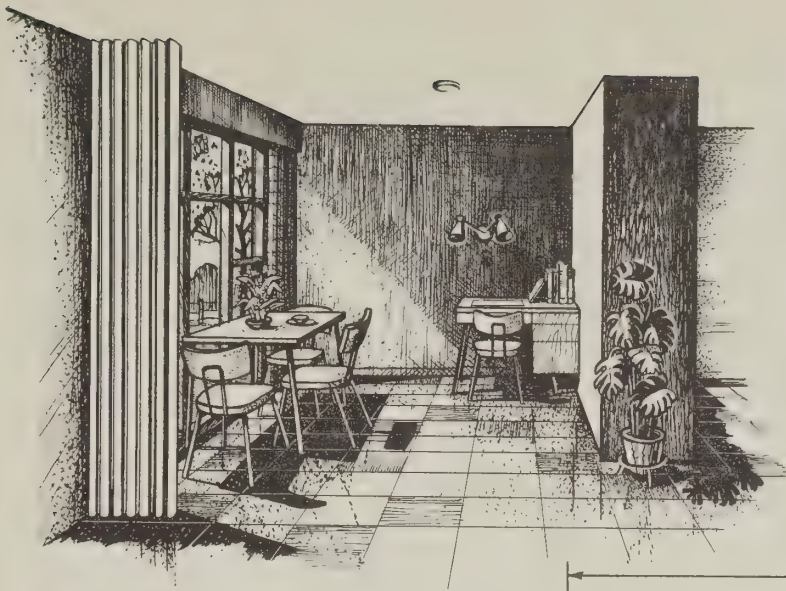
IN A BASEMENTLESS HOUSE
SUBSTITUTE FURNACE FOR STAIR
ADDITIONAL WALL STORAGE IN
THE WORK AREA MAY ELIMINATE
SOME WINDOWS.

LIVING AREA (COUNTING
50 % OF GARAGE OR OPEN
PORCH AREAS) = 1044 SQ. FT.

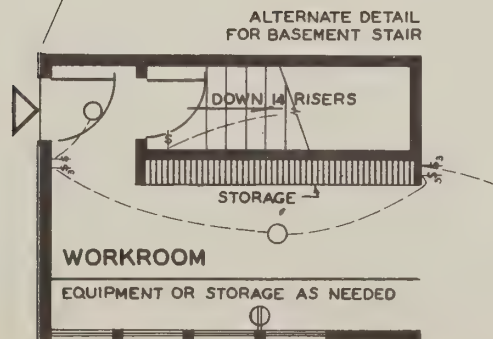
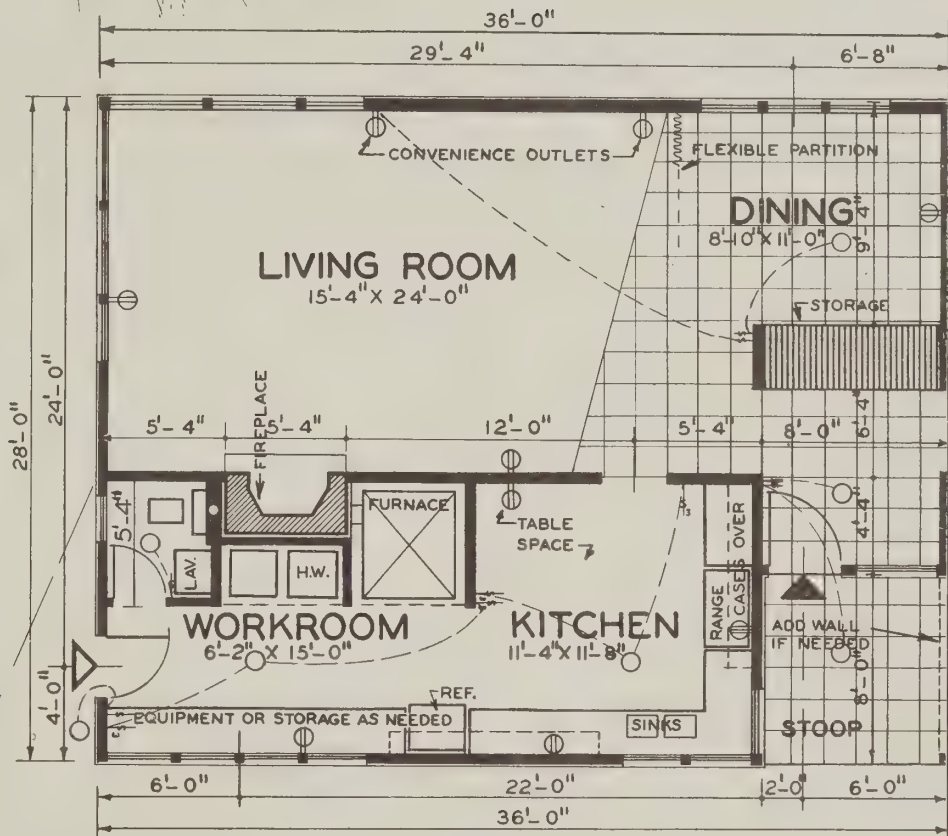


R

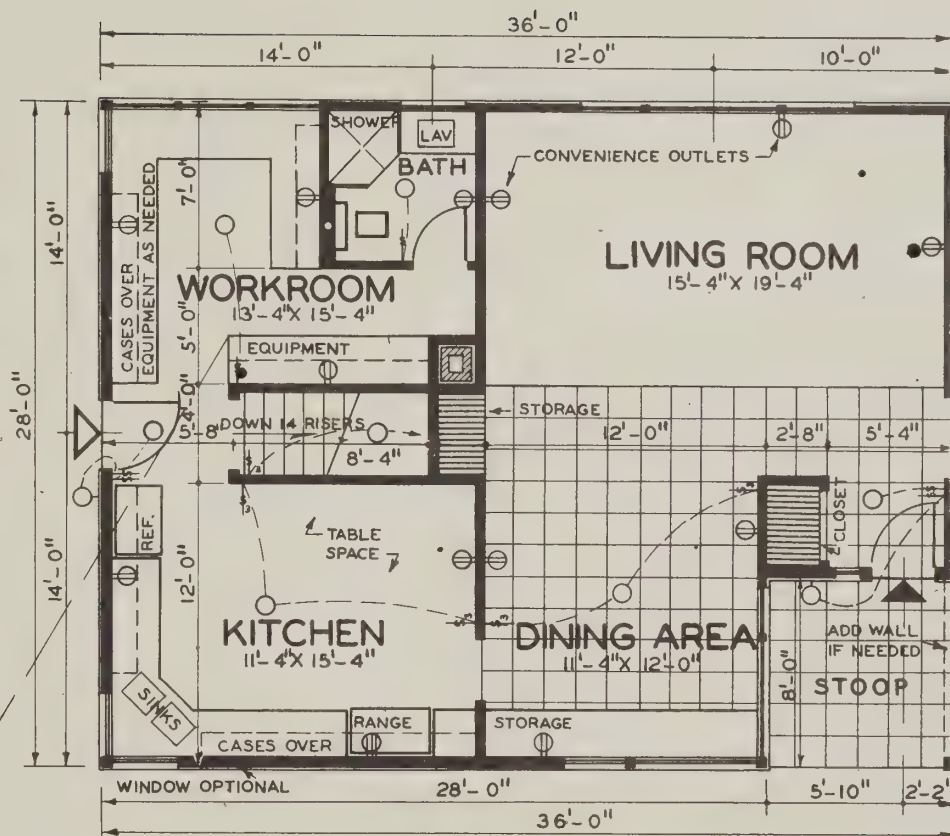
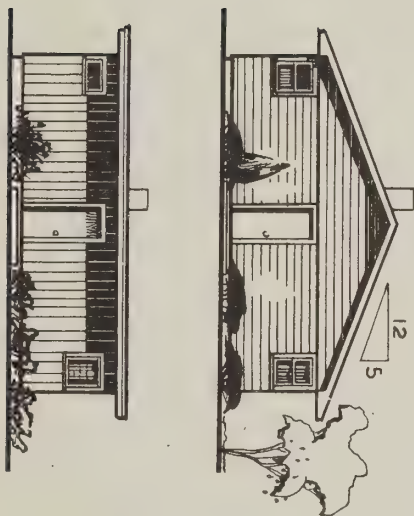
FLEXIPLAN 71204



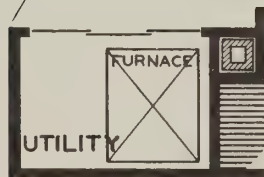
LIVING AREA= 976 SQ. FT.



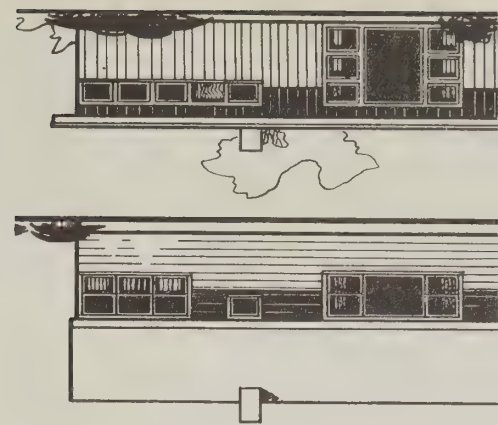
S

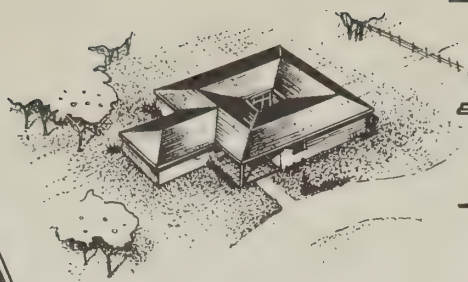


LIVING AREA = 976 SQ. FT.

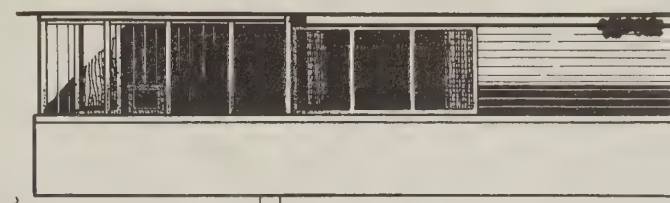
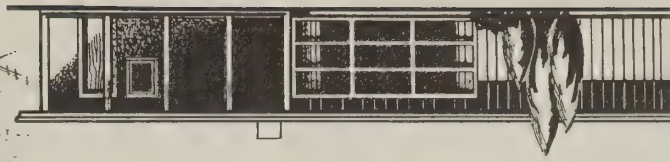
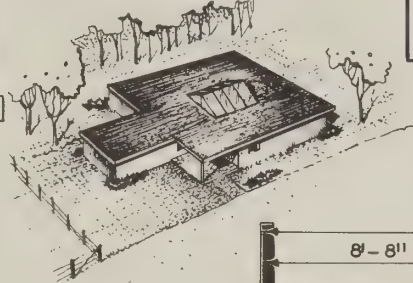


ALTERNATE ARRANGEMENT
FOR BASEMENTLESS HOUSE





ALTERNATE ARRANGEMENTS
FOR SUN TRAP OR SUN ROOM



PRIMARY LIVING AREA = 944 SQ. FT.

33'-4"

24'-8"

CONVENIENCE OUTLETS

SERVICE PORCH

DINING-LIVING ROOM

15'-0" X 32'-4"

20'-0"

4'-4"

3'-8"

12'-0"

DOWN 14 RISERS

CASES OVER

EQUIPMENT

STORAGE

IF MORE KITCHEN SPACE IS
NEEDED, MOVE REFRIGERATOR

MULTI-PURPOSE

11'-0" X 19'-6"

KITCHEN

8'-0" X 11'-4"

EQUIPMENT AS NEEDED

REF.

SINKS

RANGE

CASES OVER

4 WINDOW OPTIONAL

POSSIBLE ROOF OUTLINE

THIS AREA MIGHT BECOME A
SUN ROOM (WITH SKYLIGHT
OVERHEAD) OR A ROOFLESS
SUN TRAP, WHEN ENCLOSED

PORCH

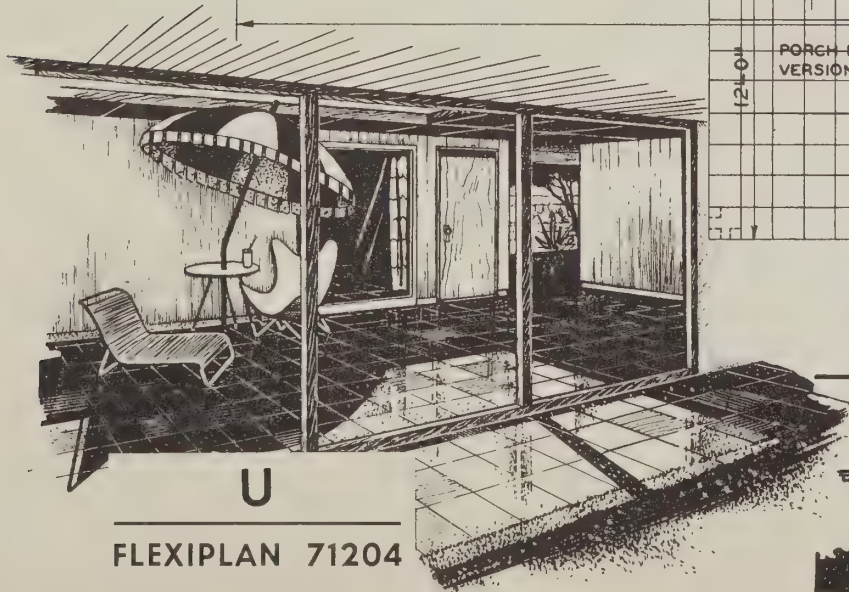
POSTS FOR PORCH AS SHOWN IN ELEVATIONS BELOW

24'-2"

PORCH FOR EXPANDED
VERSION OF HOUSE

POSSIBLE ADDITION WHEN
COMBINED WITH BEDROOM
SECTIONS 9, 11, 14, OR 15.

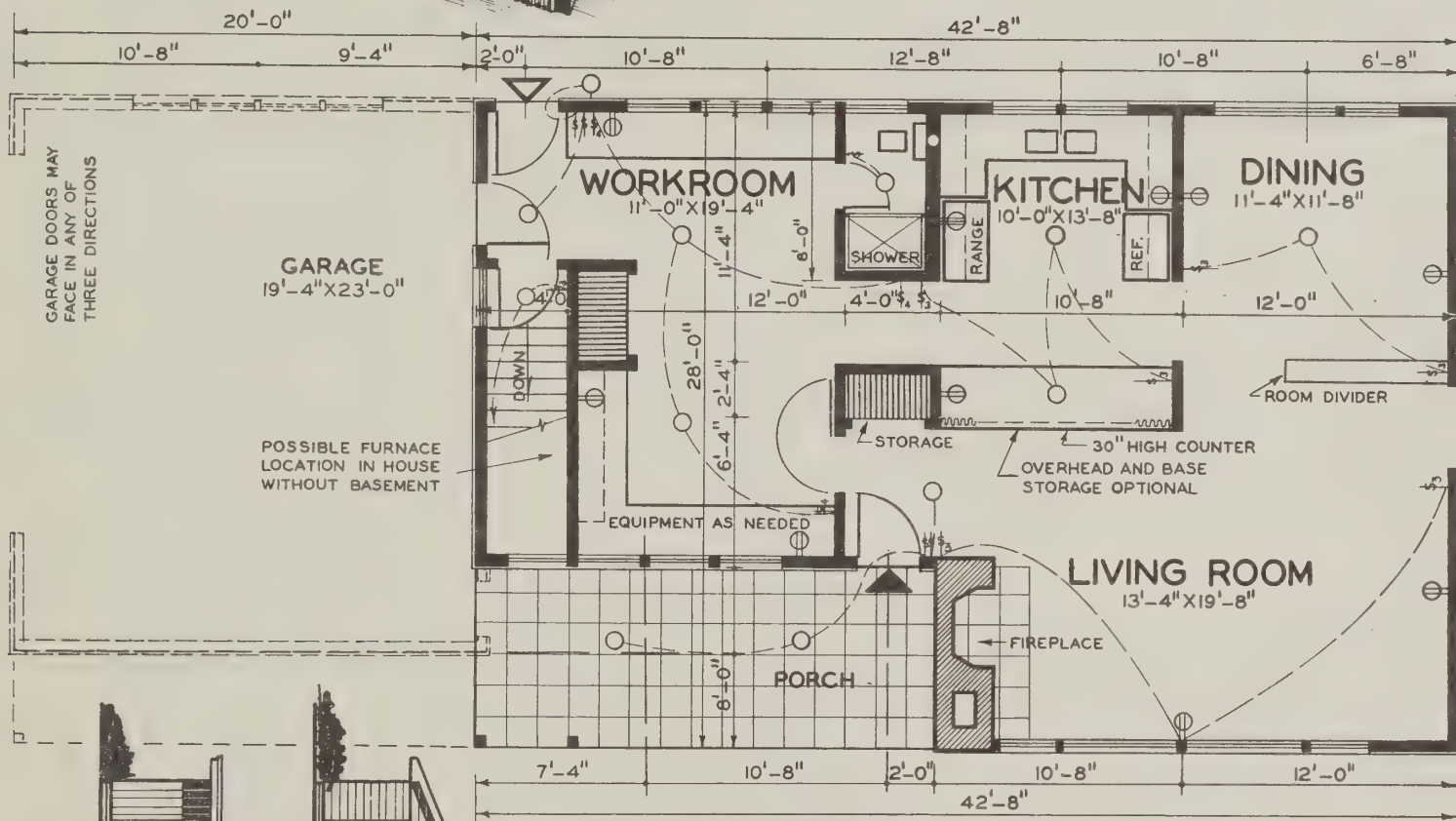
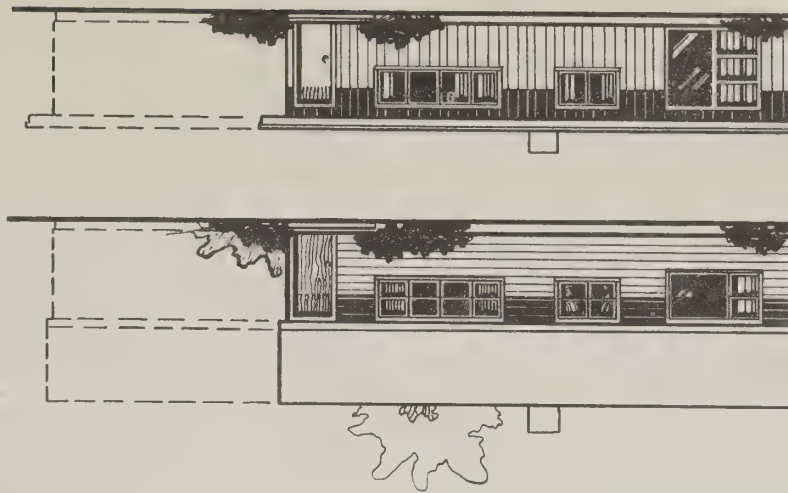
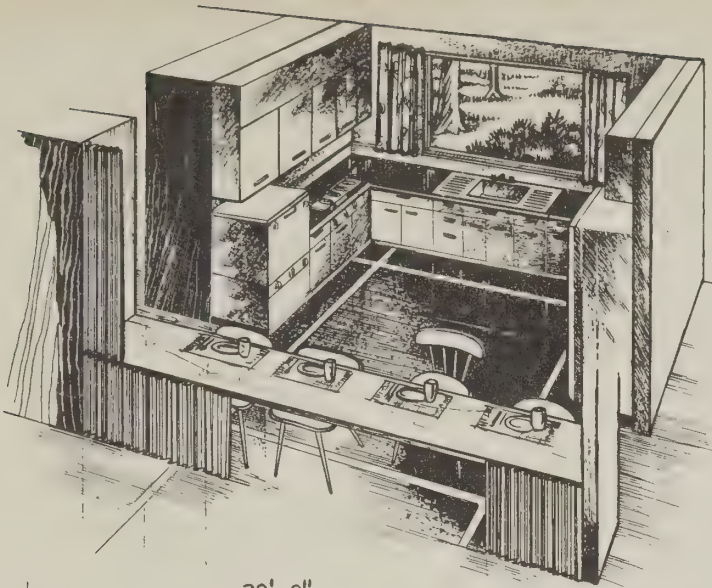
CLOSET ADDITION



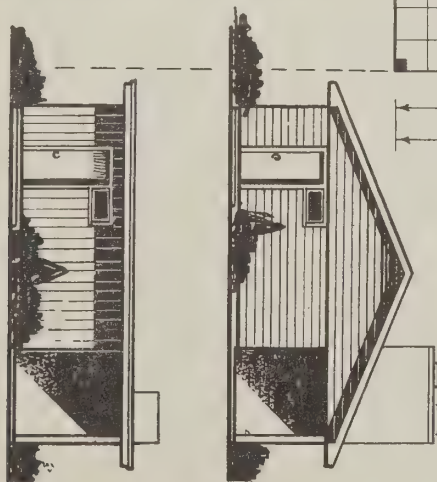
U

FLEXIPLAN 71204



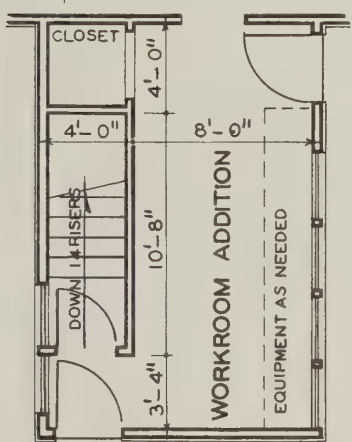
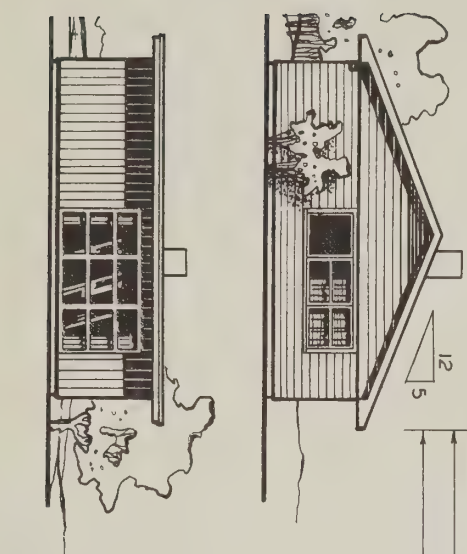
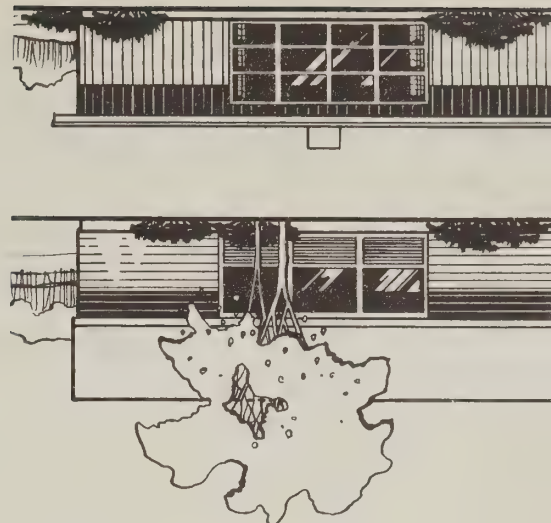


LIVING AREA (EXCLUDING GARAGE SPACE)=1016 SQ.FT.



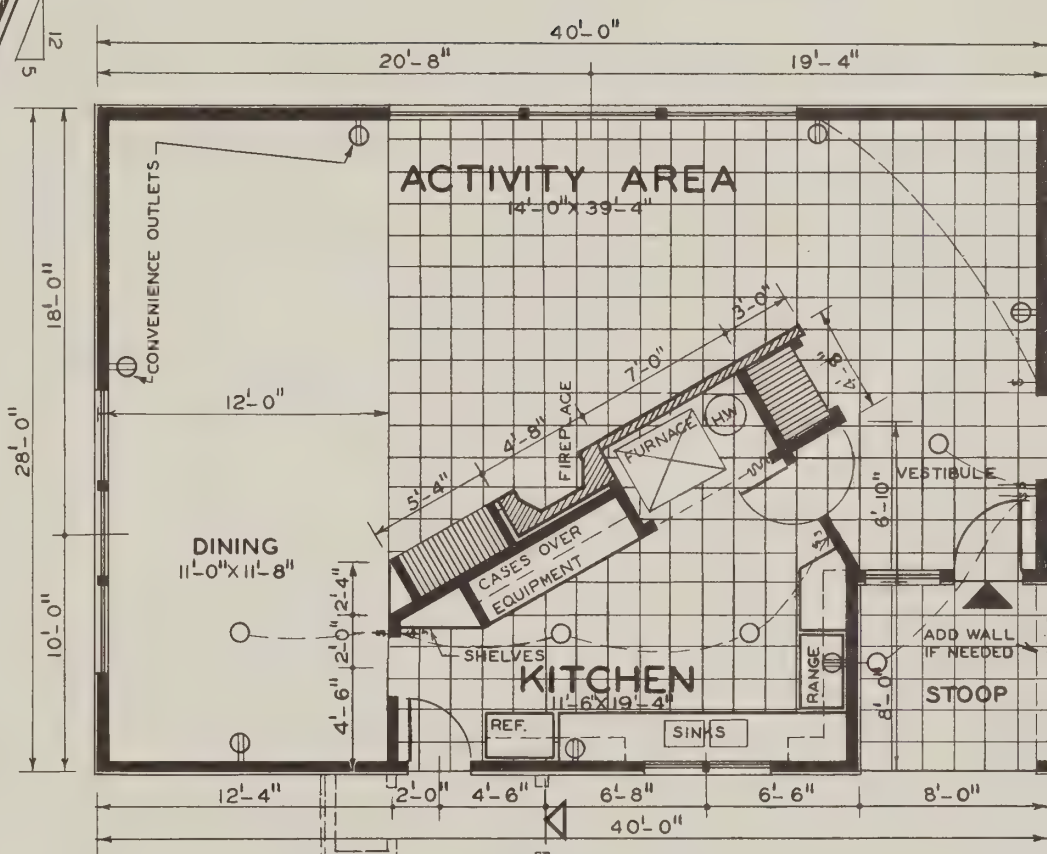
V

FLEXIPLAN 71204



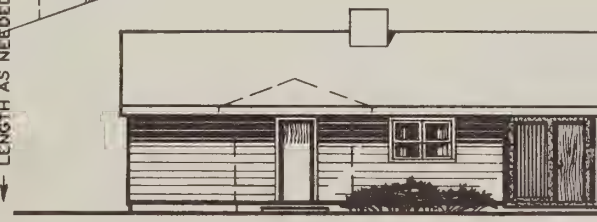
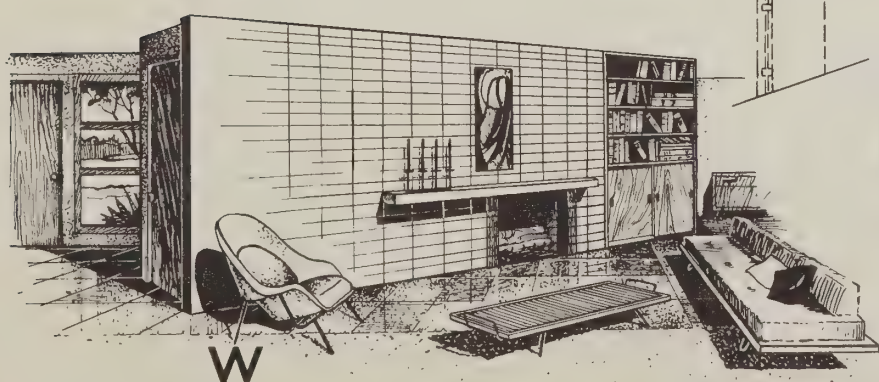
ALTERNATE WORKROOM PLAN
FOR A HOUSE WITH BASEMENT

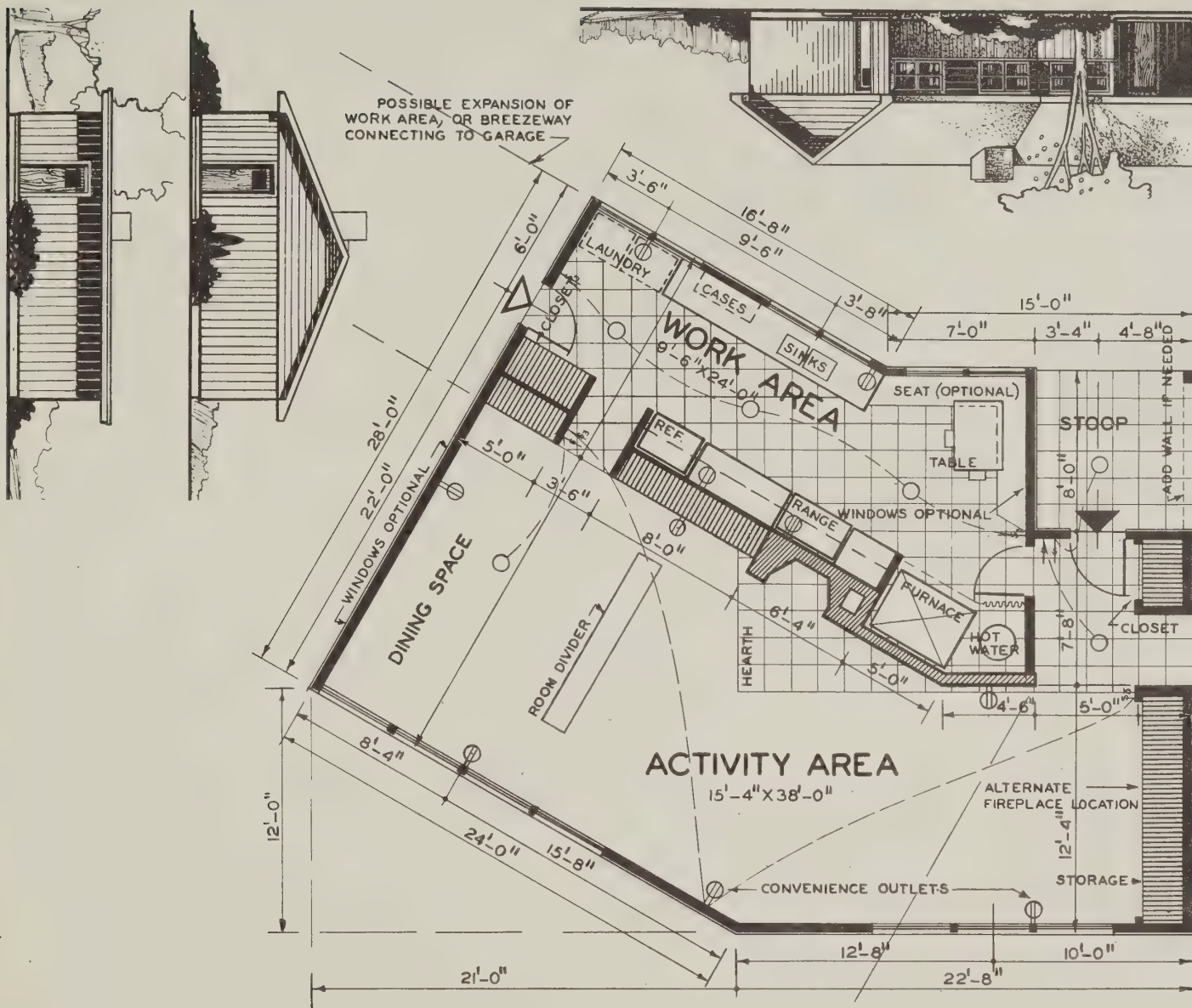
LIVING AREA = 1088 SQ. FT.



WORKROOM
ADDITION

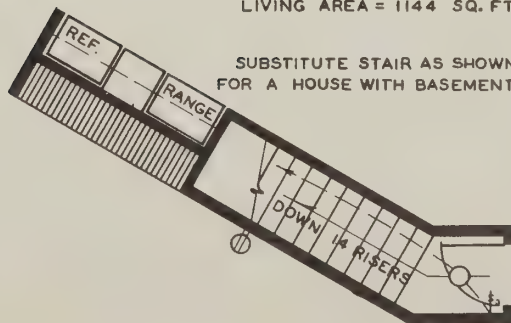
LENGTH AS NEEDED





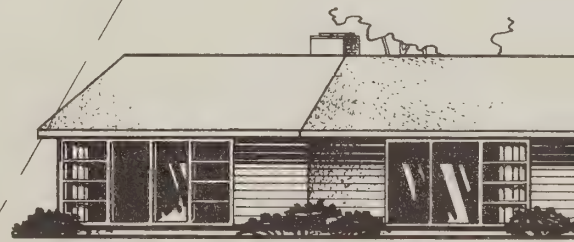
LIVING AREA = 1144 SQ. FT.

SUBSTITUTE STAIR AS SHOWN
FOR A HOUSE WITH BASEMENT



X

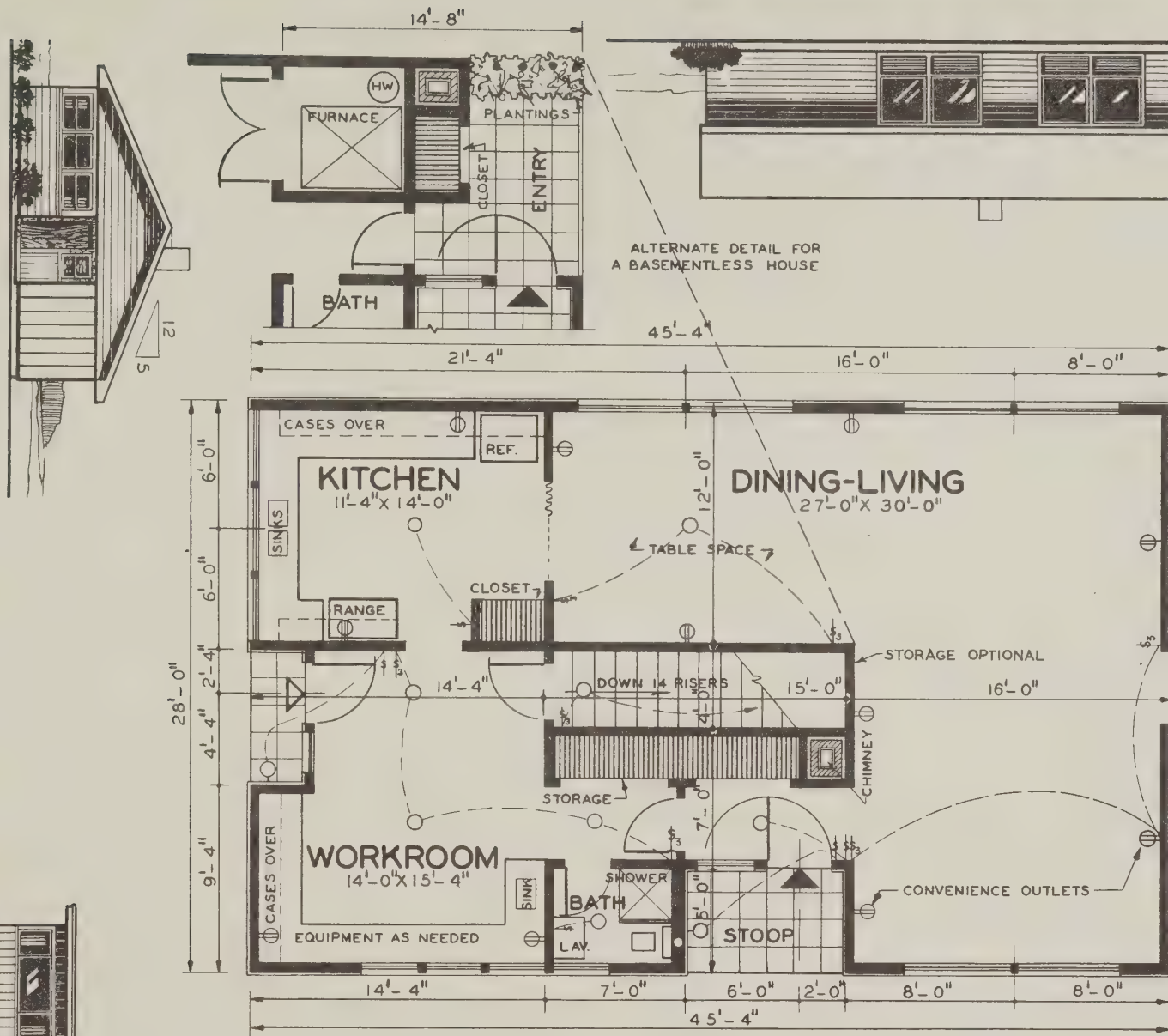
FLEXIPLAN 71204



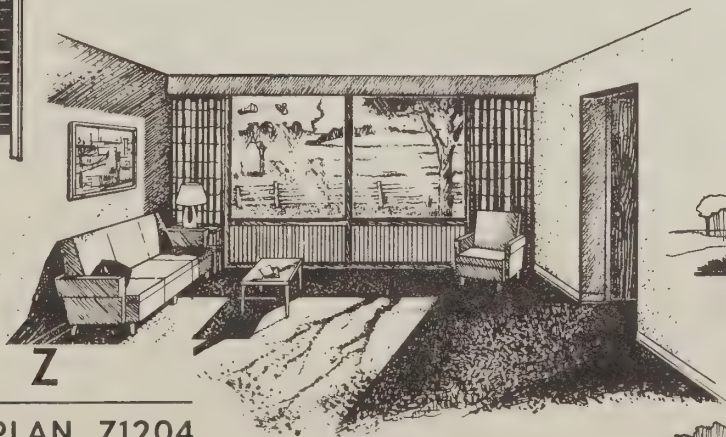


Y

FLEXIPLAN 71204

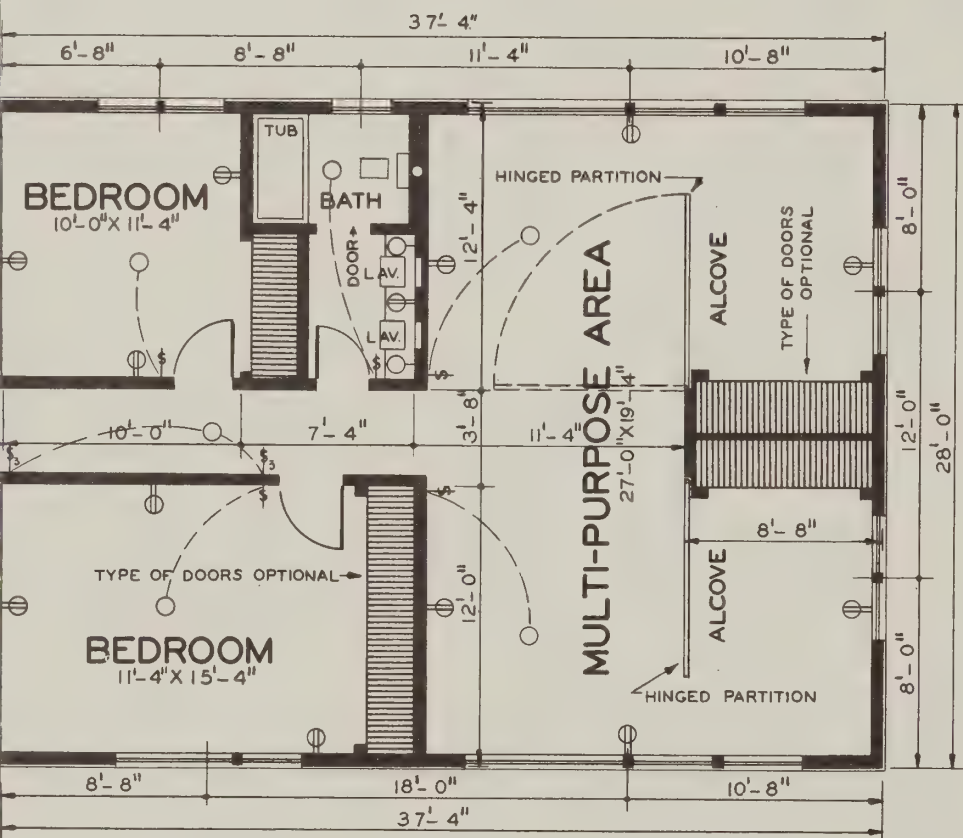
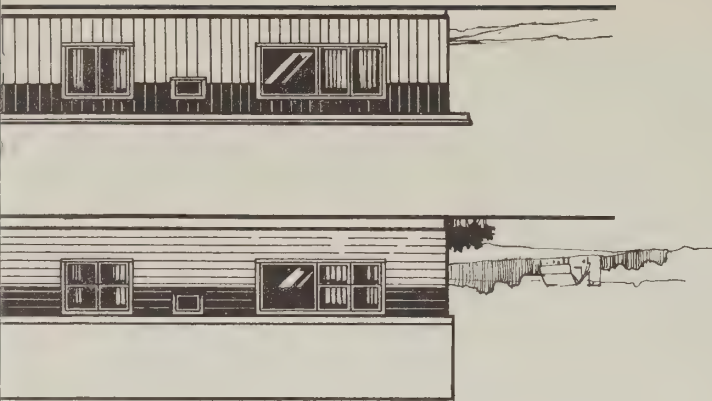


LIVING AREA = 1234 SQ. FT.

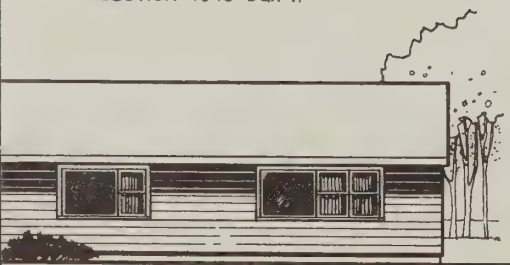


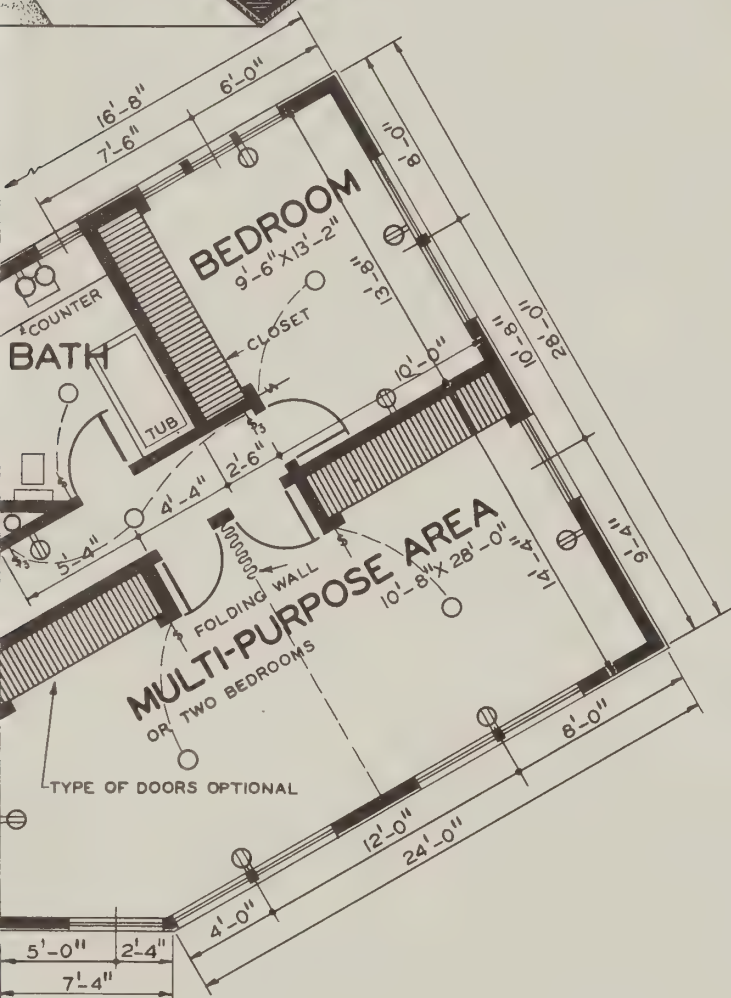
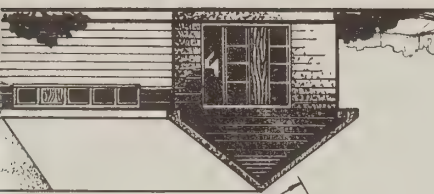
FLEXIPLAN 71204



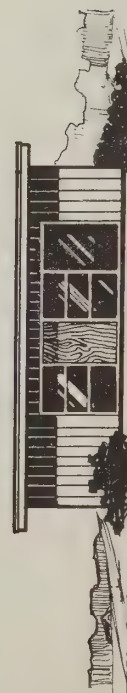


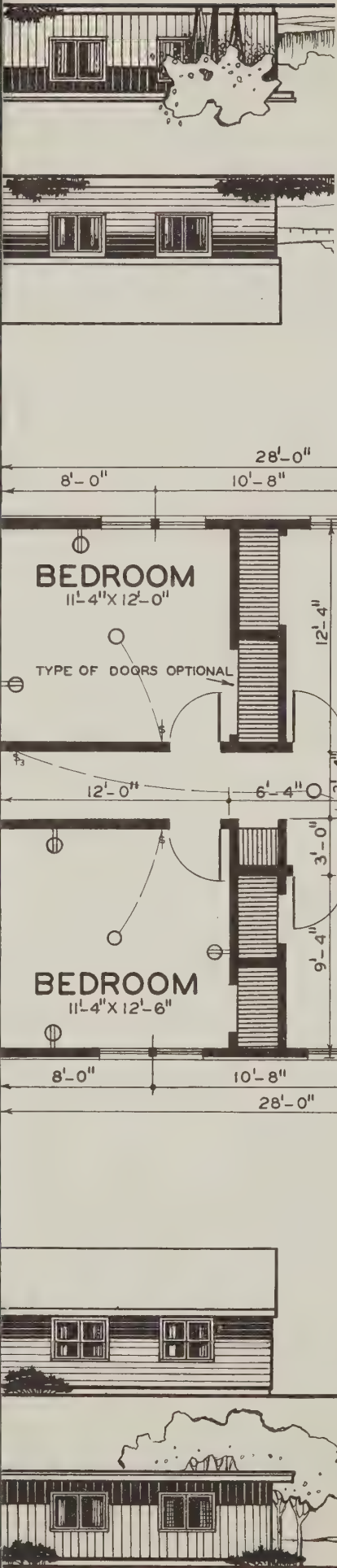
AREA OF BEDROOM
SECTION=1045 SQ.FT.





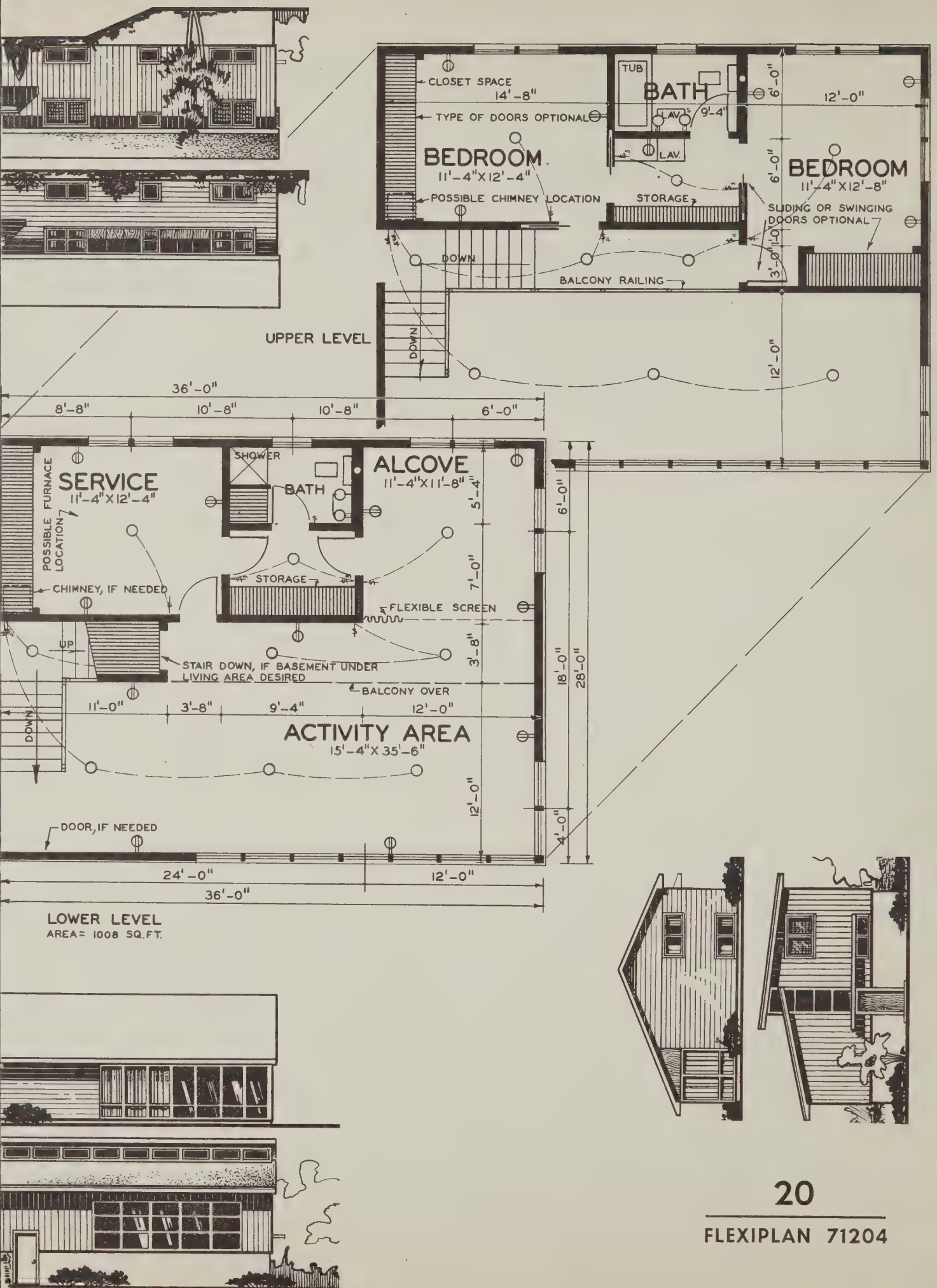
AREA OF BEDROOM
SECTION = 636 SQ. FT.

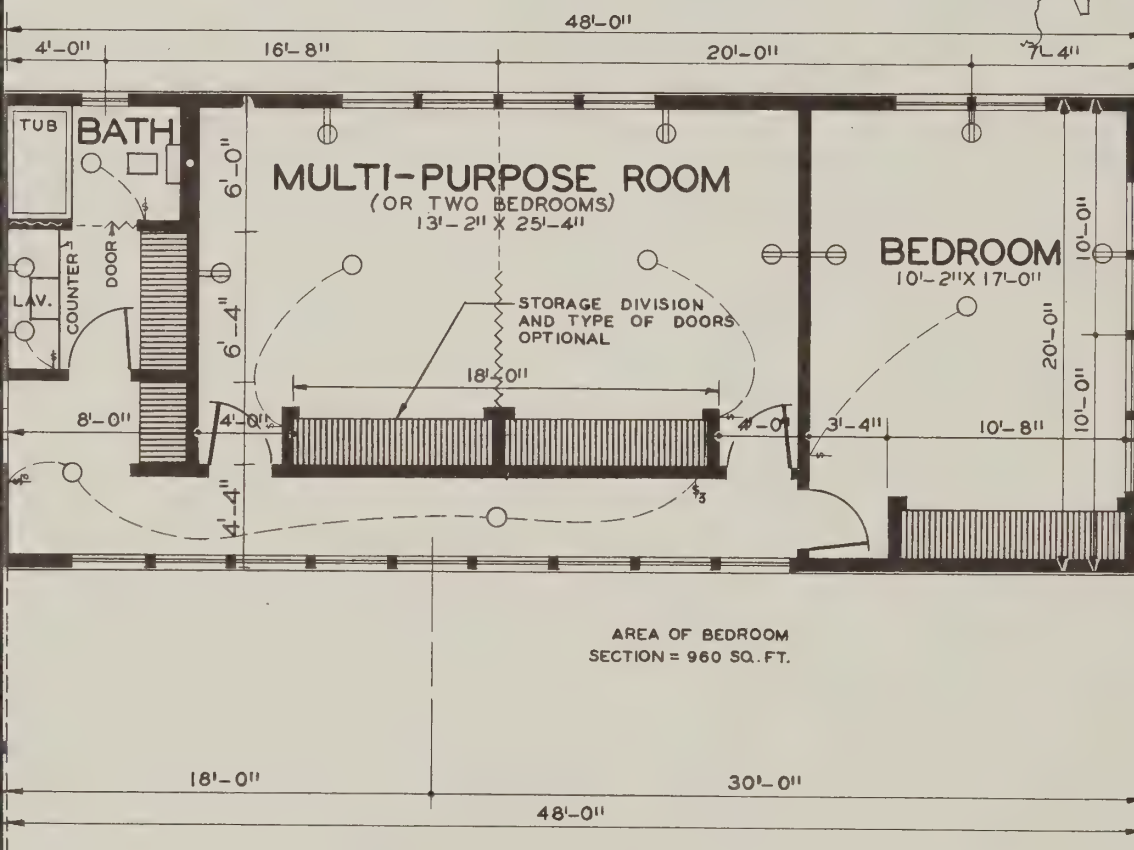
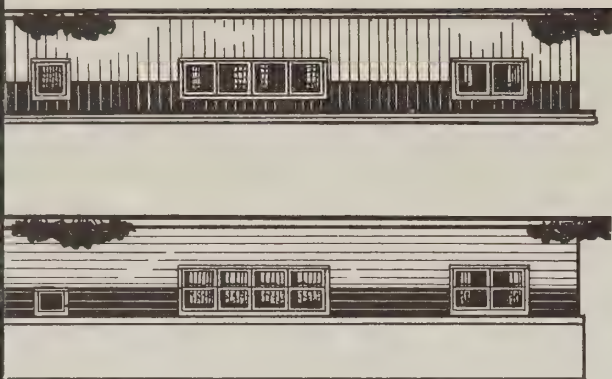


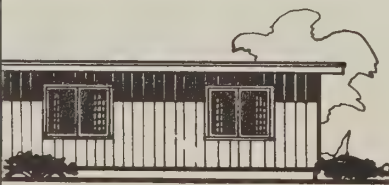
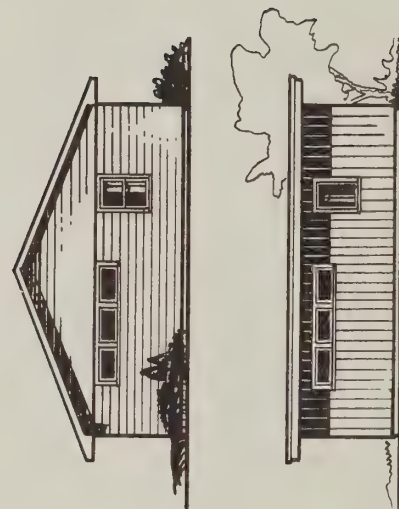
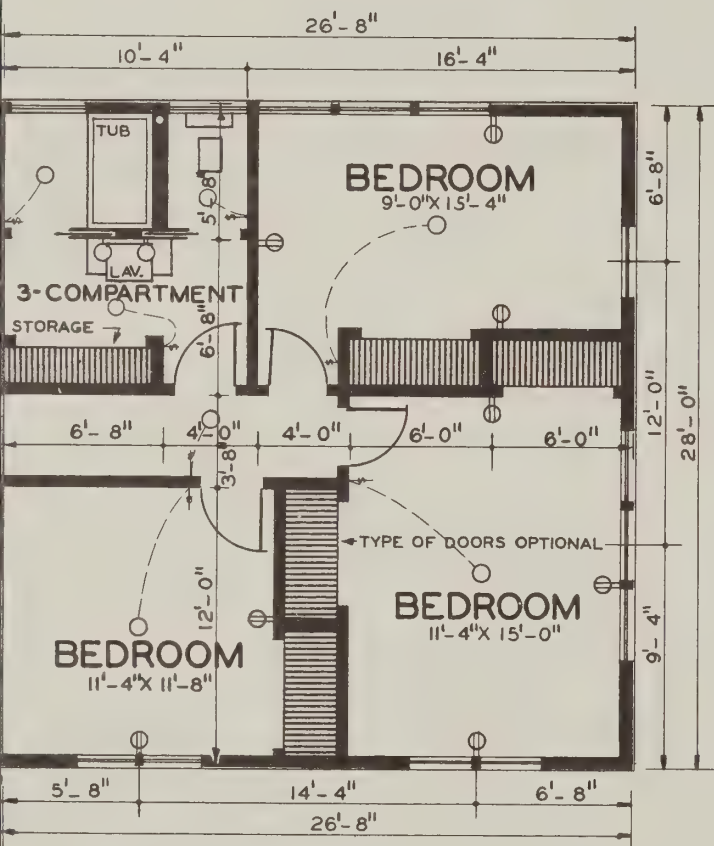


AREA OF BEDROOM
SECTION = 784 SQ. FT.

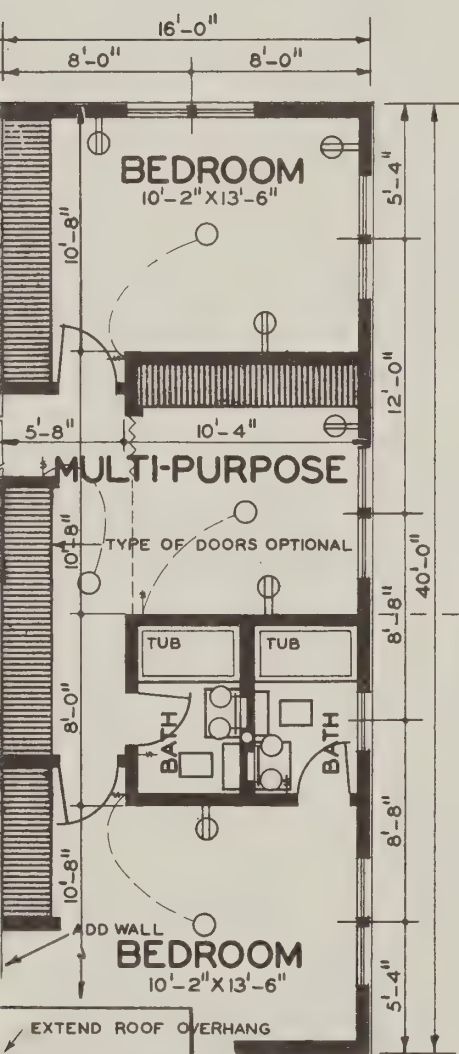
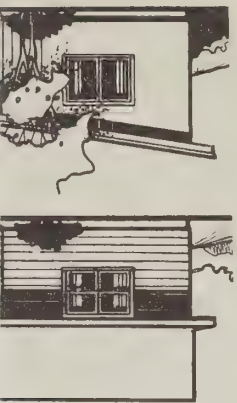




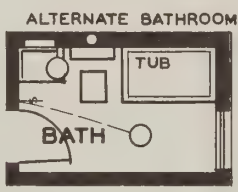




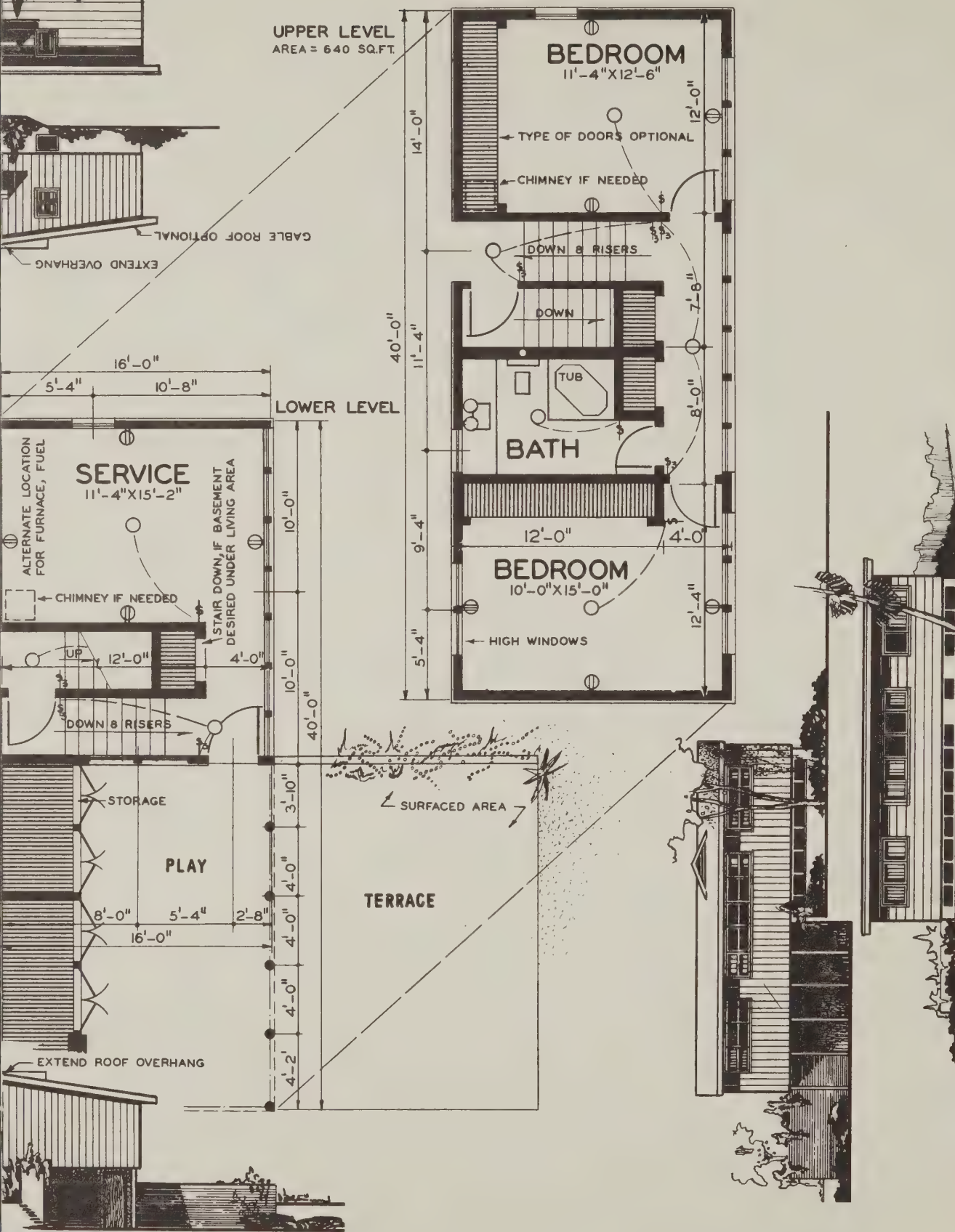


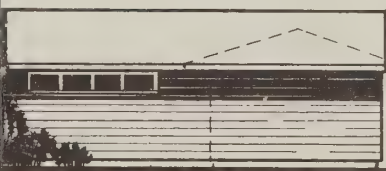
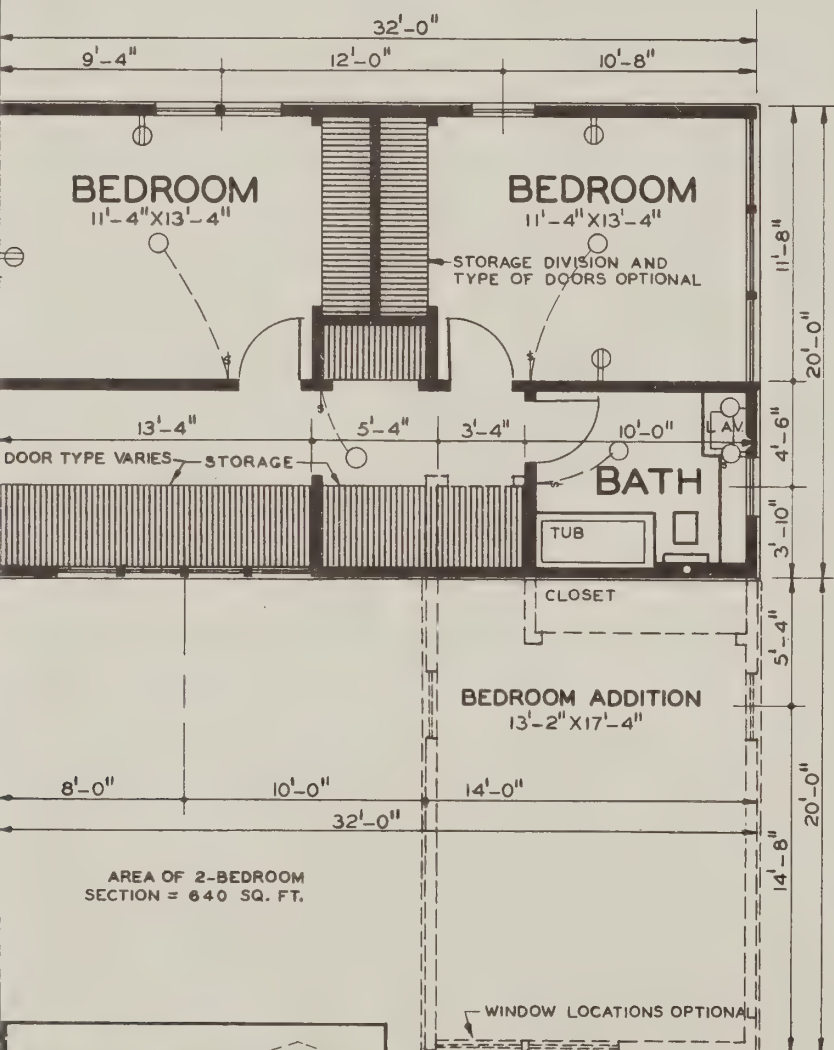


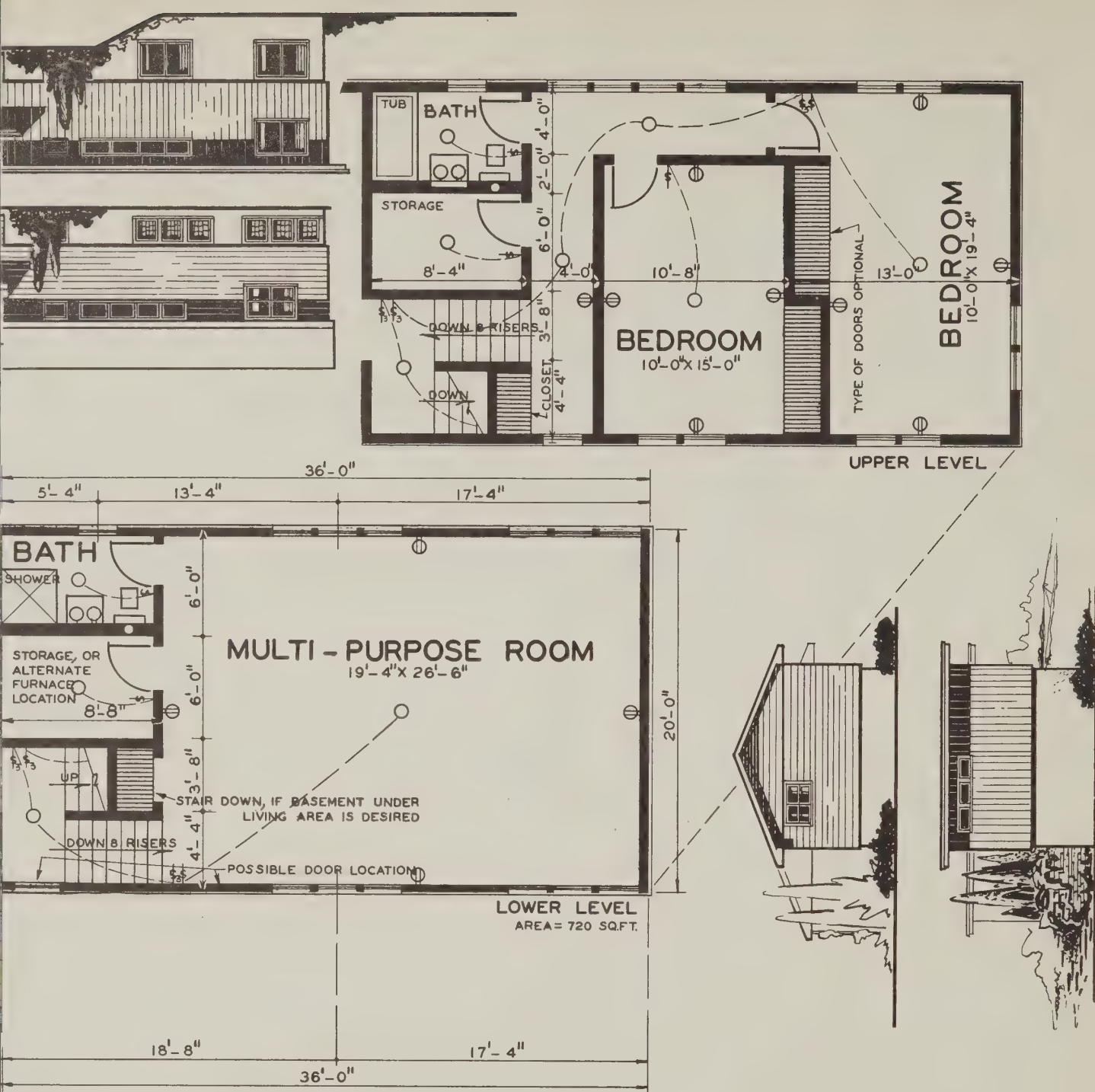
AREA OF BEDROOM
SECTION = 640 SQ. FT.

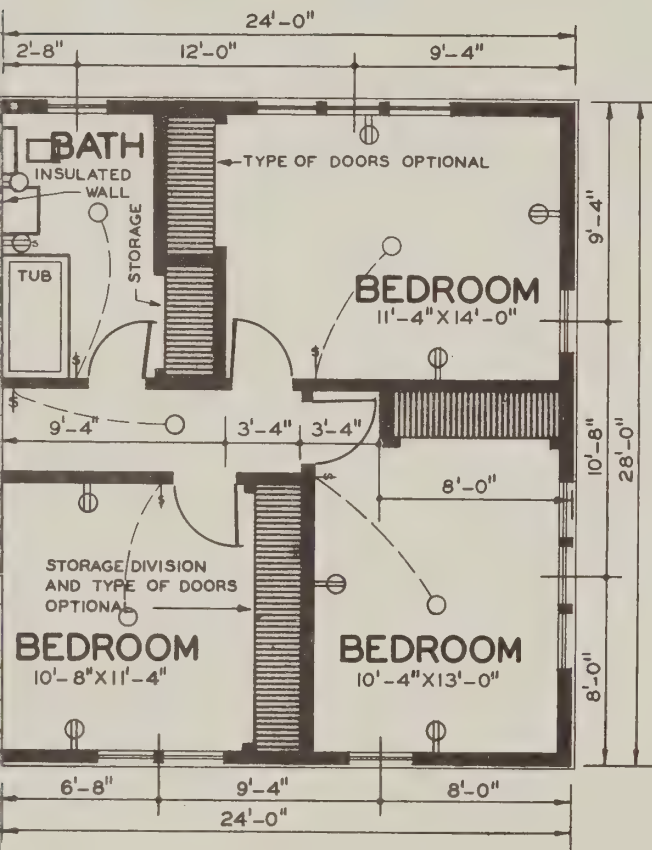


SPLIT-LEVEL HOUSES CAN BE ADAPTED TO
LEVEL SITES, OR TO VARIOUS GROUND SLOPES







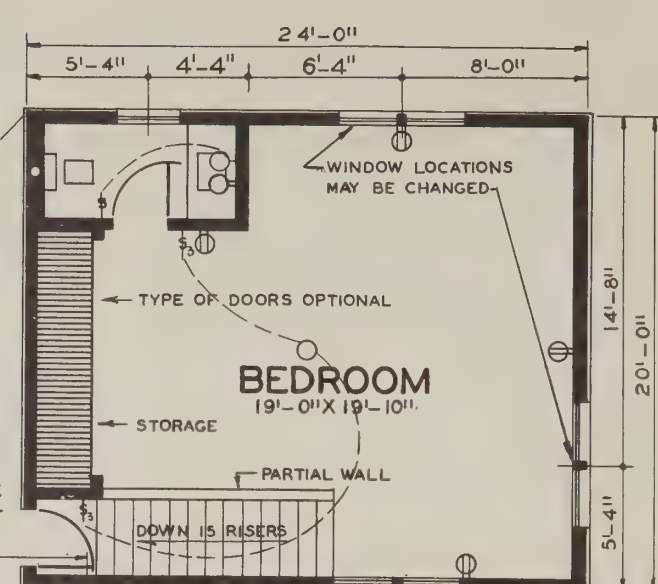
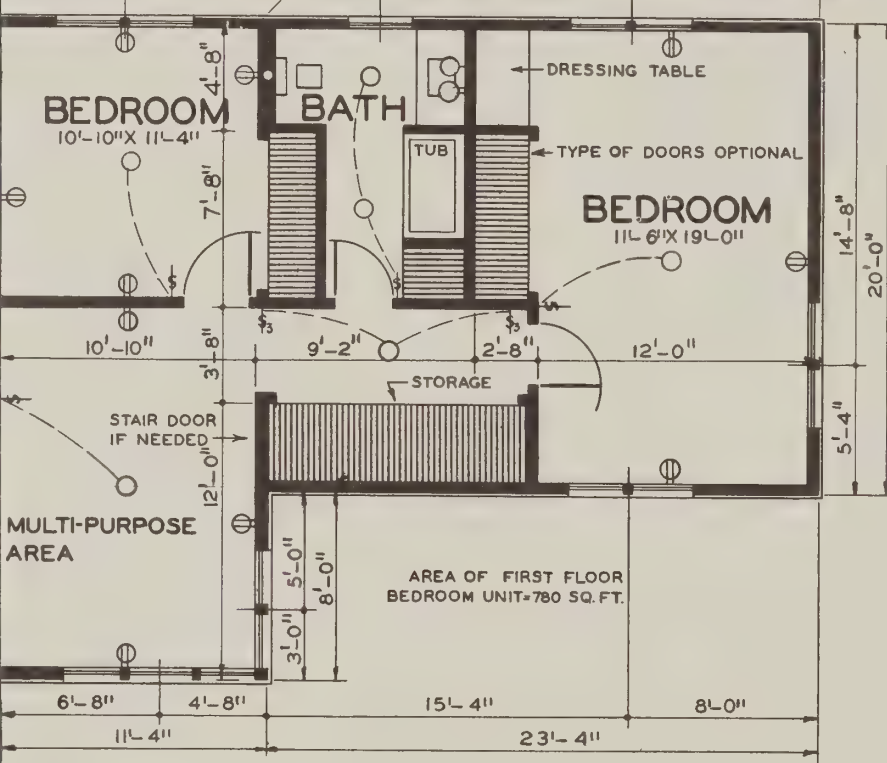


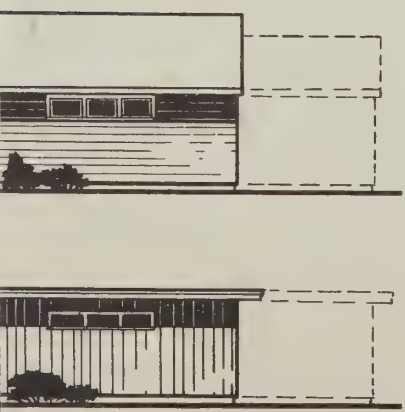
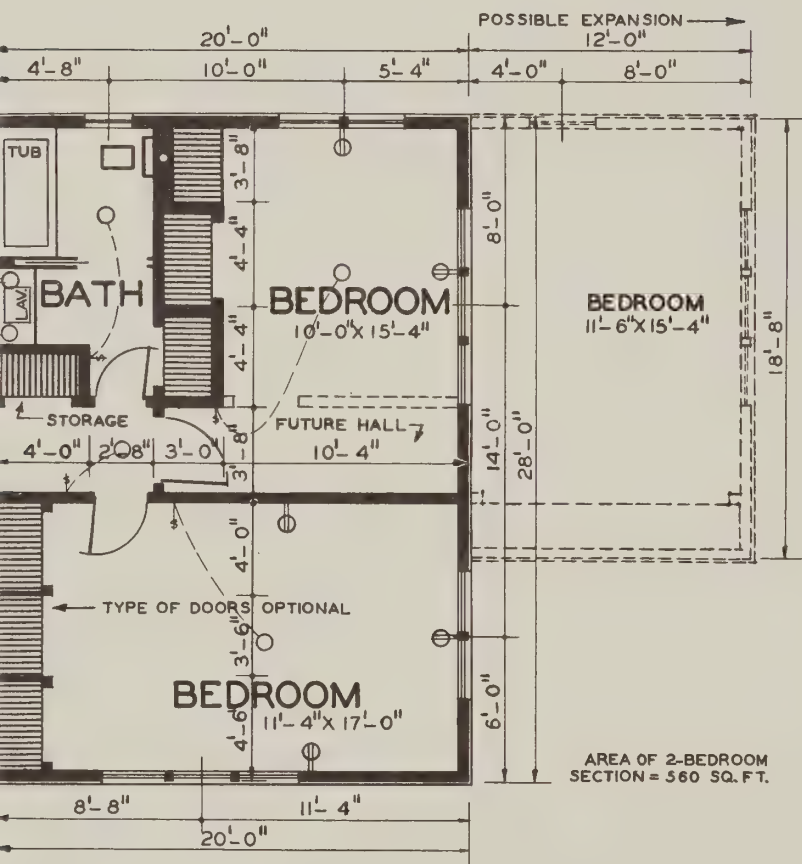
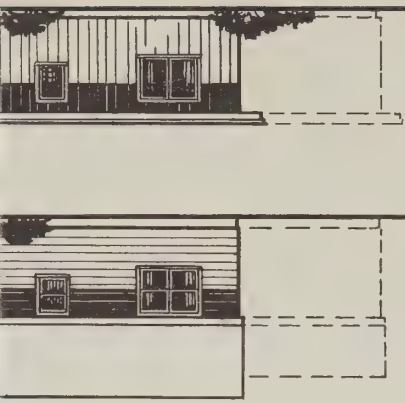
AREA OF BEDROOM
SECTION = 672 SQ. FT.

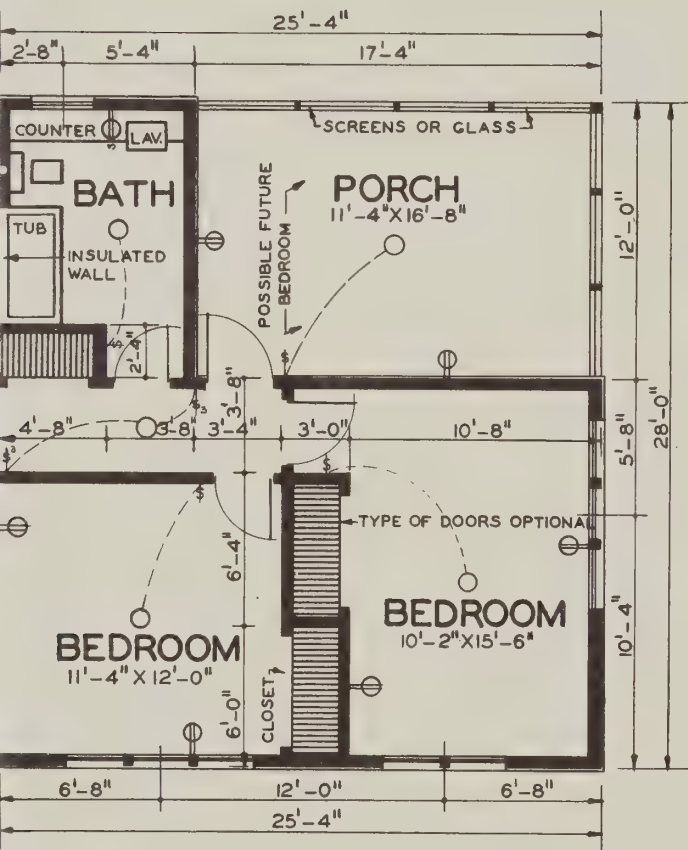


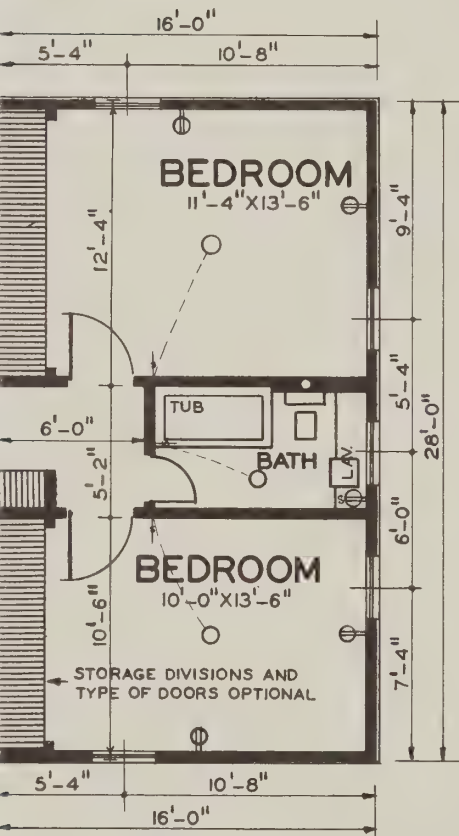
AREA OF BEDROOM
SECTION = 640 SQ. FT.





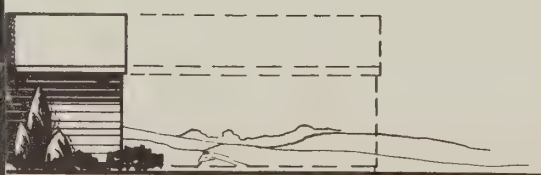
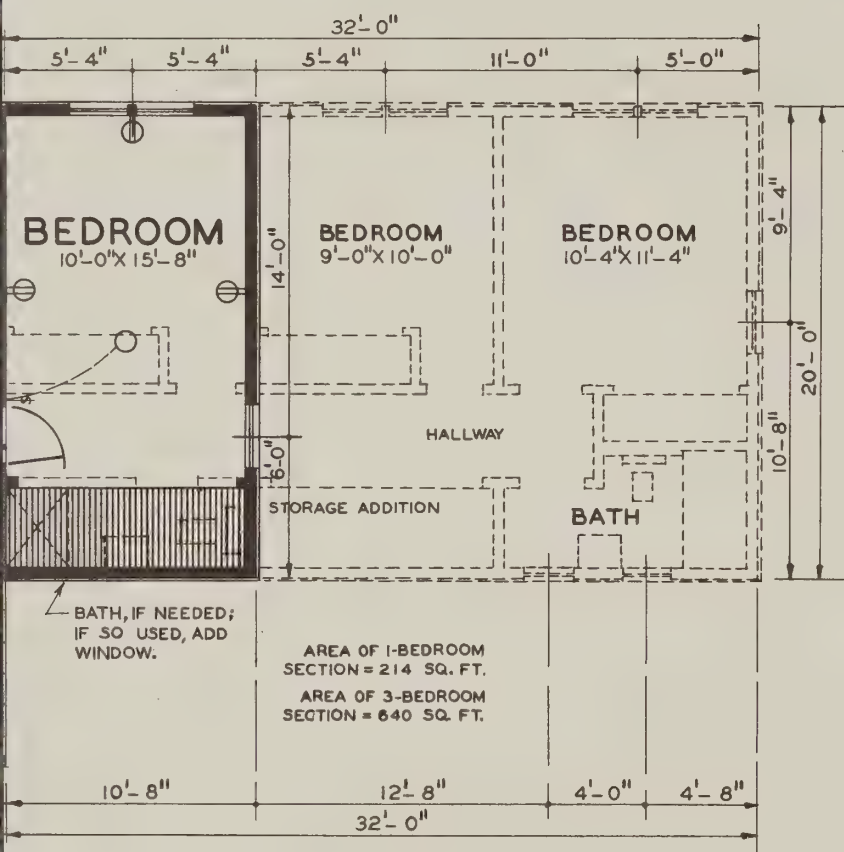
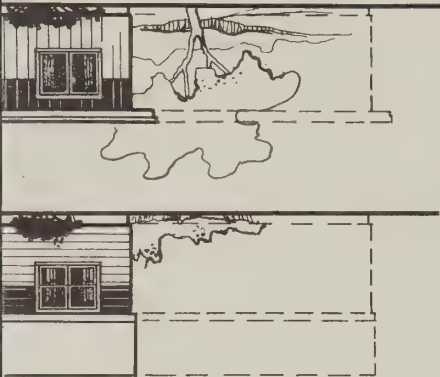


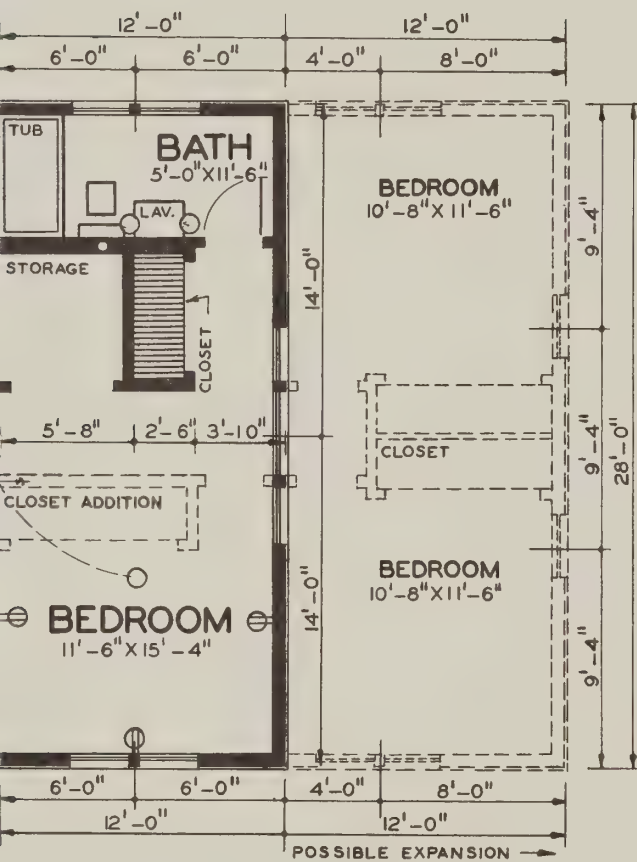




AREA OF BEDROOM
SECTION = 448 SQ. FT.



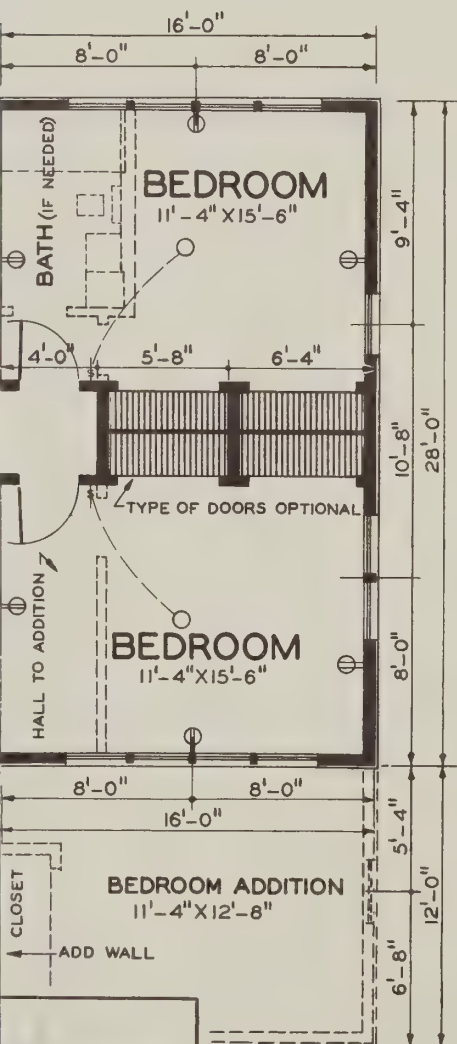




AREA OF 1-BEDROOM
SECTION = 336 SQ. FT.

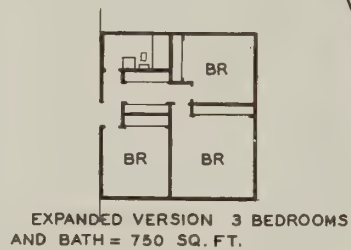
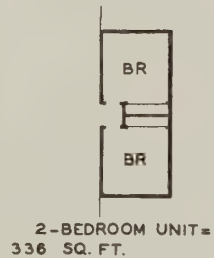
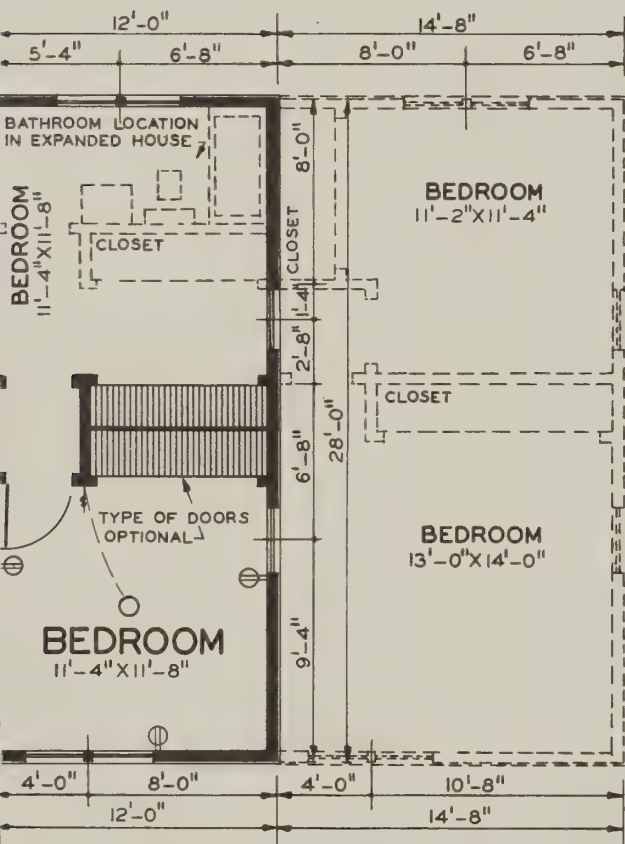
AREA OF 3-BEDROOM
SECTION = 672 SQ. FT.





AREA OF 2-BEDROOM
SECTION = 448 SQ. FT.

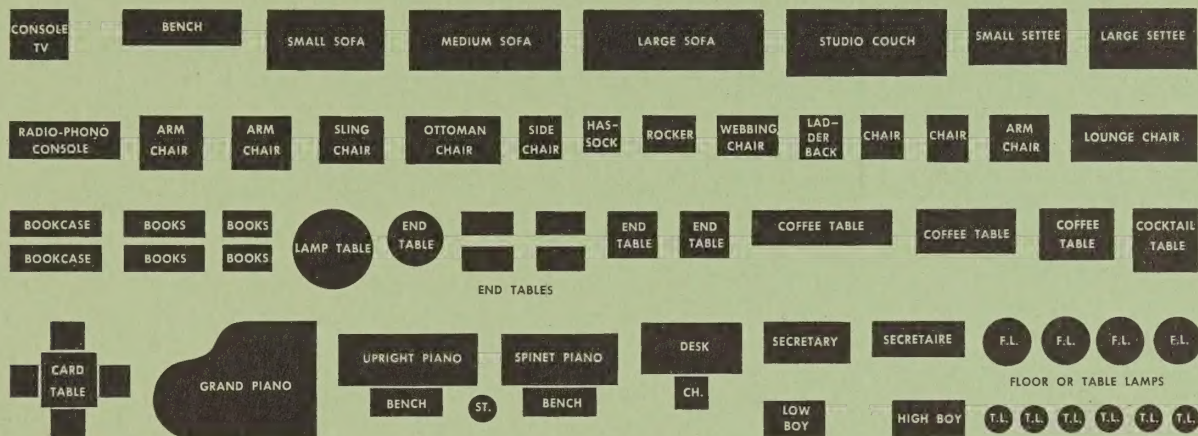




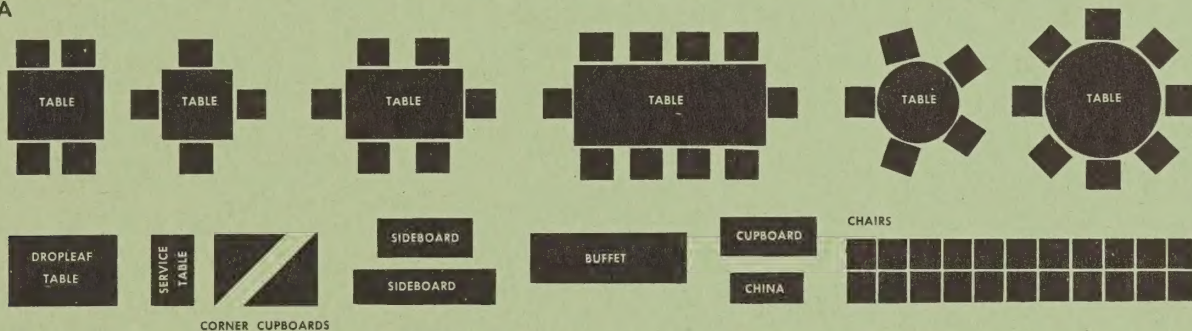
FURNITURE CUTOUTS. These cutouts represent the typical sizes of furniture and equipment usually found in the home. They can be used with the house floor plans since they are at the same scale, one-eighth inch to the foot. You can cut them out as needed or you can copy them and make your own, preferably from stiff paper. Measure the furniture you have and draw it to the same scale.

After you have selected a plan, use the cutouts to find out how your furniture will fit into the arrangement. You may want to change the plan slightly — by choosing a different type of window, for example, or shifting the location of a window or door — to permit a more usable or suitable arrangement. Or, if the plan just doesn't work, you may want to select another one.

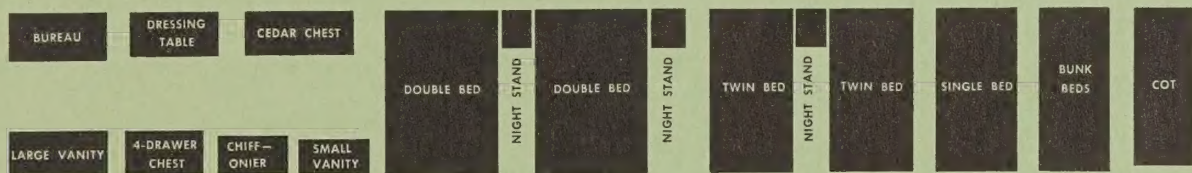
ACTIVITY AREA



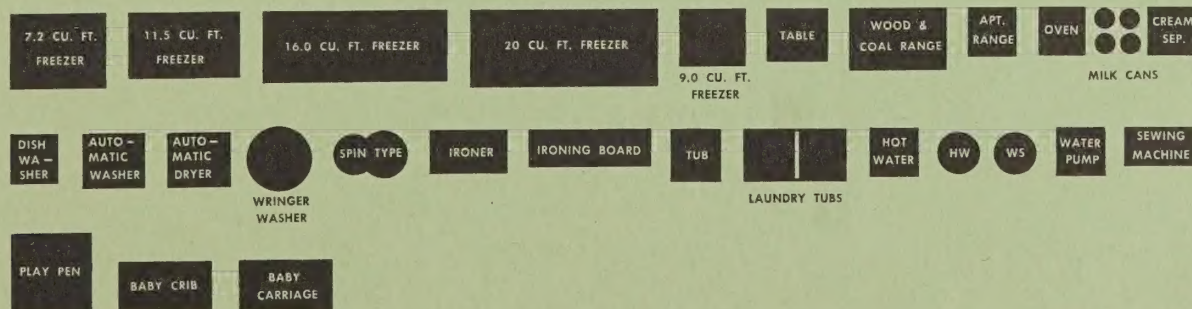
DINING AREA



SLEEPING AREA



WORKING AREA





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